THE AMERICAN
School Board Journal

A PERIODICAL OF SCHOOL ADMINISTRATION

Devoted to the Interests of School Boards, Superintendents,
School-Business Officials, and School Architects

VOLUME 92
JANUARY—JUNE, 1936

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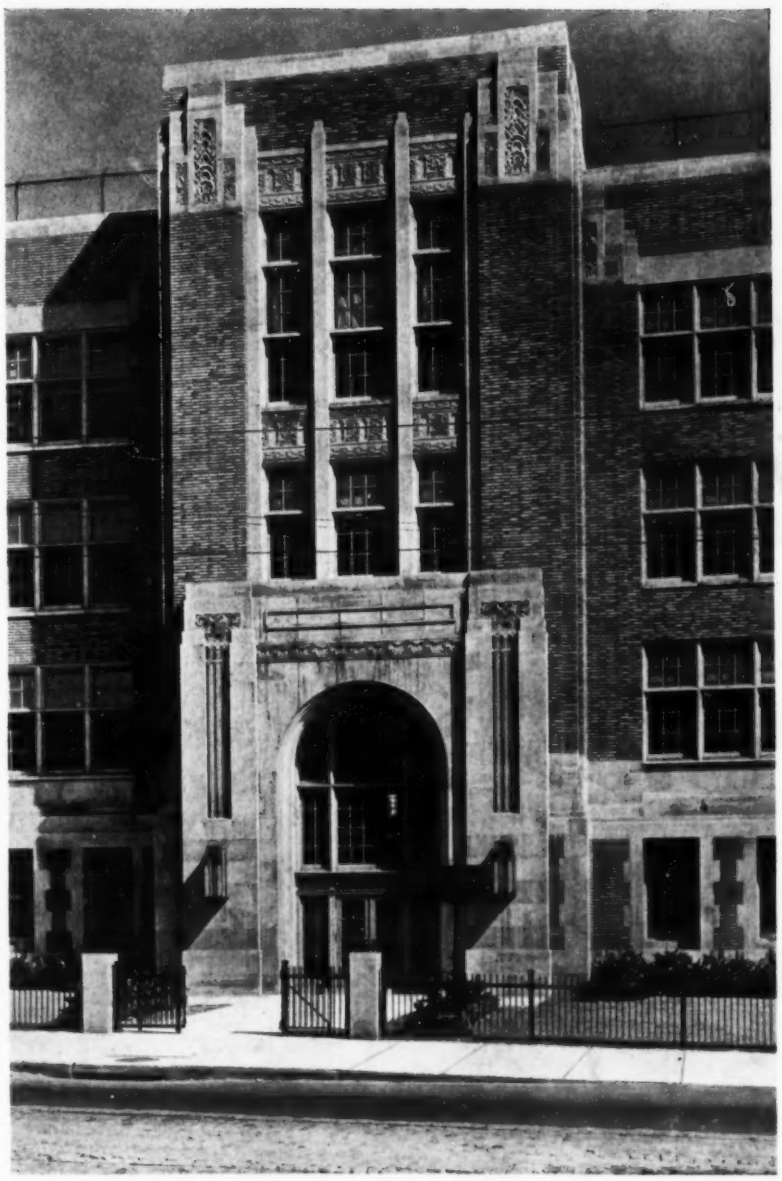


36th ANNUAL
School Building Number

In all Types of SCHOOLS

CENTRAL SCHOOL,
VAN HORNESVILLE,
N. Y.
Ernest Sibley, Architect.

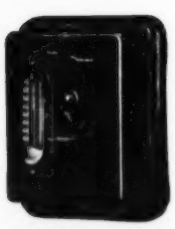
JOHNSON AUTOMATIC HEAT CONTROL

HIGH SCHOOL, WALTHAM, MASS.
Kilham, Hopkins & Greeley, Architects.

and for all Kinds of Heating Plants

JOHNSON automatic temperature control systems are the result of fifty years of development. Designed, manufactured and installed by a single, unified organization operating through direct branches in all parts of the United States and Canada, JOHNSON has kept abreast of every change in heating and ventilating practise.

JOHNSON apparatus is available for the proper automatic operation of every type of heating and ventilating system. An example of this is the development of JOHNSON devices to secure the cycle of operation required from unit ventilators and auxiliary radiators which make up the ventilating and heating installations in many modern school buildings. . . . The relationship between the elements of a JOHNSON control system is worked out carefully so that exactly the desired results are obtained.



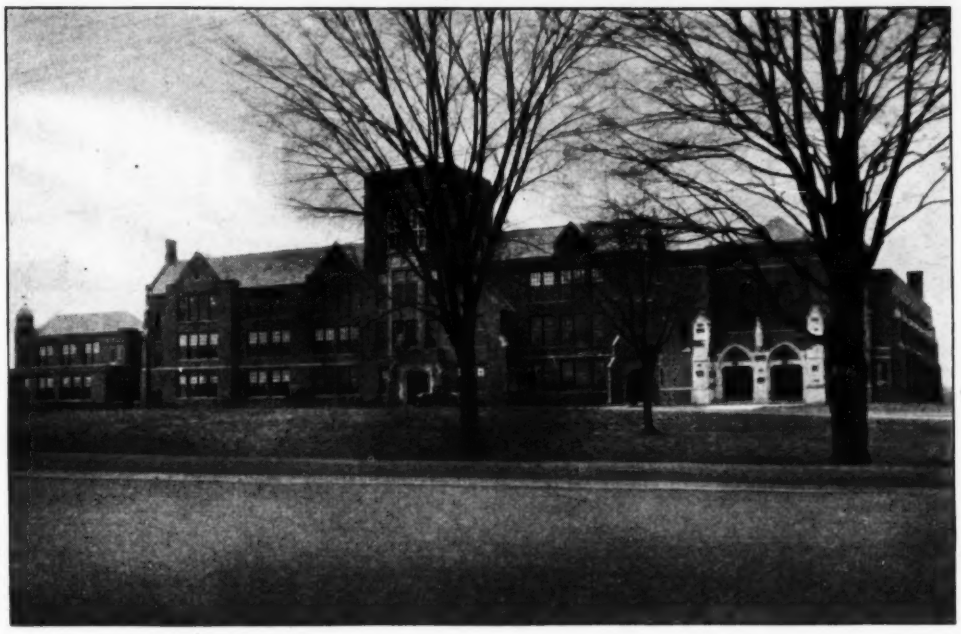
JOHNSON DUAL THERMOSTAT

JOHNSON *Dual Thermostats,* another instance of useful development, maintain a reduced, economy temperature throughout the building during non-occupancy periods. At times of partial occupancy, normal heating effect may be had in those rooms which are in use, carrying the rest of the building at a lower temperature. Separate steam mains are not required.

JOHNSON SYLPHON RADIATOR VALVE

JOHNSON SERVICE COMPANY

MILWAUKEE, WIS. « » BRANCHES IN ALL PRINCIPAL CITIES



Brockport
Central High School
Brockport N. Y,

DRYER & DRYER
Architects
Rochester, N. Y.

HARD MAPLE FLOORING USED *for* YEARS *in* SCHOOLS

because of excellent service and reasonable maintenance cost

Few problems in school construction require deeper consideration than that of selecting the material for floors. How will the flooring affect school room routine—the health and efficiency of pupils? Will it be an economy over a period of years? How easily can it be kept clean? Will it provide firm anchorage for desks? Will it simplify or hinder other construction work? These are some of the questions that must be asked—and answered.

Fortunately, one flooring material gives the proper answer to all these questions, *Northern Hard Maple*—the flooring material that combines warm, dry, cushioning effect beneath the feet, with lasting wear and smoothness.

Northern Hard Maple is resilient, tough-fibred, tight-grained. It will not sliver, splinter or develop ridges when subjected to the scuffing and pounding of youthful feet. It actually outwears stone! Maple, moreover, is exceptionally easy to keep clean. Its smooth surface offers no lodging spaces for dirt and dust.

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"For years we have been using Hard Maple Flooring and have found it very satisfactory. In selecting the flooring material for the gymnasium in the Brockport Central High School, we specified and used 1⅛" Hard Maple Flooring because of this excellent service given and reasonable maintenance cost.

We have specified and used it in substantial areas in practically all our school buildings, the thickness varying with the purpose for which it was intended."

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Architects
By: Harwood B. Dryer

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—especially adapted to classroom floors of Maple. These finishes seal the surface of hard maple, keep out dirt, resist soil stains and prove non-slippery. They will not mar, scratch or flake off. That's why they are easy to clean and maintain at low cost.

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The letters **MFMA** on Maple, Beech or Birch Flooring signify that the flooring is standardized and guaranteed by the Maple Flooring Manufacturers Association, whose members must attain and maintain the highest standards of manufacture and adhere to manufacturing and grading rules which economically conserve these remarkable woods. This trade-mark is for your protection. Look for it on the flooring you use. **MFMA**

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Cobbs & Mitchell, Inc.	Cadillac, Mich.
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See our advertisement Sec., 15/53 in Sweet's.

Let our Service and Research Department assist you with your flooring problems. Write us.

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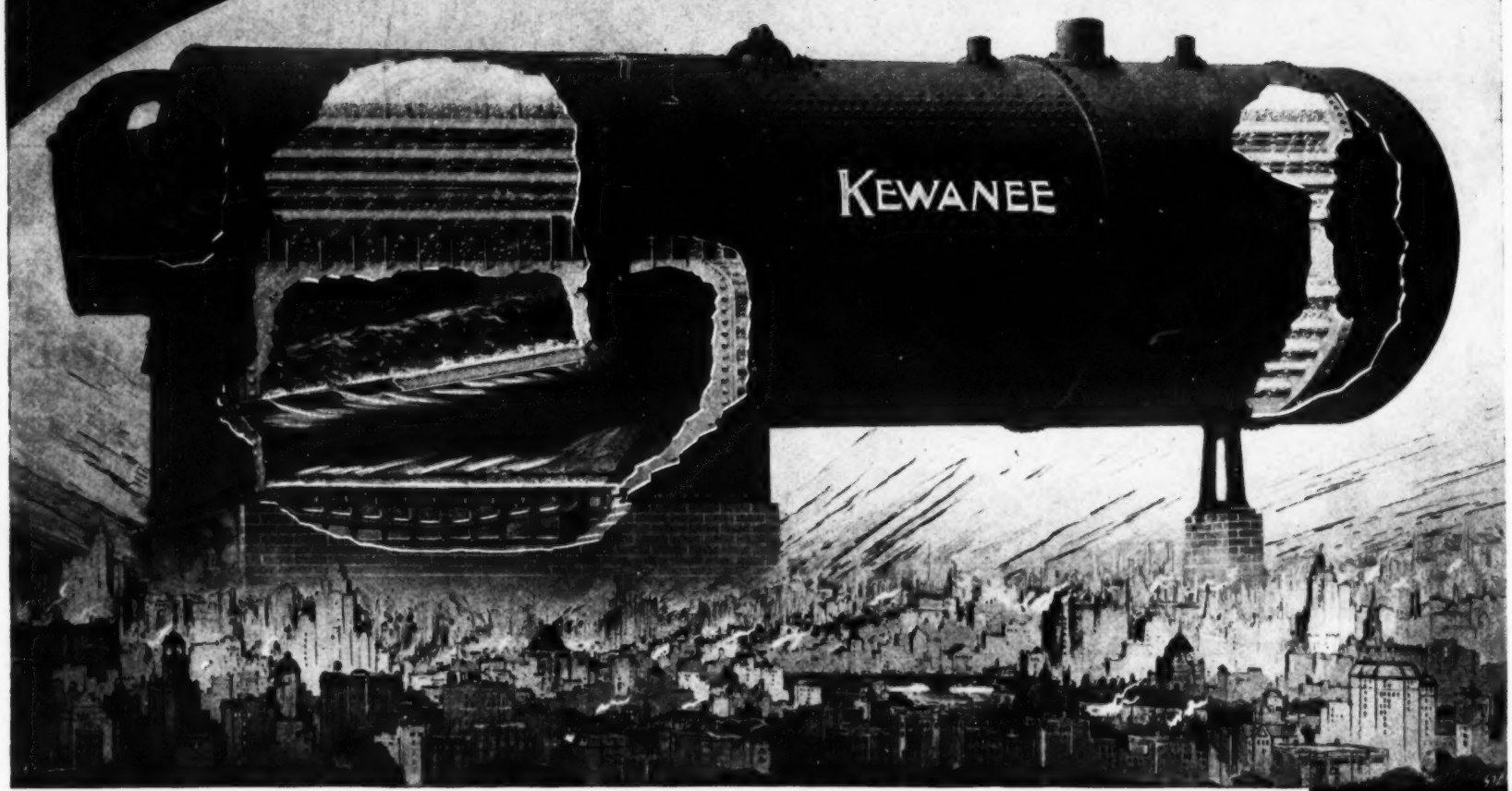
1780 McCormick Building
Chicago, Illinois

7286 of America's Finest Schools

BOTH LARGE AND SMALL



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Space does not permit us to describe this new equipment in detail, but we assure you it is the finest Unit Ventilator that Sturtevant has ever produced. The beautiful furniture steel cabinet, trimmed with stainless steel, and available in any solid color with rough or smooth finish, speaks for itself. Inside you will find the same substantial, dependable construction . . . the same sound engineering . . . which Sturtevant has put into ventilating equipment furnished for outstanding installations for the past seventy years. Complete information in Catalog 377-1, gladly mailed on request.

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A cross section of the thought of American leaders of today and yesterday

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These forty-one carefully selected speeches provide excellent examples of composition in description, exposition, narration, and argumentation with the added feature that they were presented for the immediate reaction of an audience and that a favorable response gave each a place of recognition. The inclusion of representative high-school orations provides ample study in this form of composition and brings the study of American speeches down to a very practical application to the student's needs. Several pedagogical features add to the value of the material as a high-school text. A brief introduction to each address presents one or more thoughts to guide the student in his study. Lists of unusual words appear after many of the speeches. Following each is a set of questions and problems designed to aid in the development of good judgment and stress outstanding features and ideas in the discourses.

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To prepare the student to meet the numerous situations in life that demand effective public speaking is the aim of this practical book. It takes up in detail not only public speaking as such, but also the principles of sales talks, argumentation, public extemporaneous speaking, after-dinner speaking, and conducting public meetings. Drill in pronunciation and grammatical constructions, and exercises at the close of each chapter suggest a plan for the recitation hour. Pen and ink cartoons humorously exaggerate uses and abuses of the English language, faults and habits of speakers, etc. A wide selection of readings are included to give the student practice in the principles he is learning.

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By THE HUNT BROTHERS

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How can you protect them against **DARKNESS** in case a fuse blows out?

A BLOWN FUSE is only one of the many things that can plunge a crowded auditorium in darkness. Miles away, a street accident or fire, a thunder storm or snow storm can interrupt the normal electric current supply. Although the utility companies use every resource to keep the service uninterrupted, these are occurrences entirely beyond their control.

But after all, where is the danger in darkness? It lies in this — neither children nor adults can be depended upon to use the best of judgment under such extraordinary conditions. Matches may be lighted and dropped carelessly — that is how fires start. People may crush toward the exits— crowds are prone to panic, in the dark.

These are not imaginary dangers, as tragic records can testify. Responsibility rests ultimately with the school, and modern standards of safety call for emergency lighting protection.

An Exide Keepalite Emergency Lighting Battery System prevents light-failure throughout an entire building. If preferred, protection can be localized in such vital spots as auditorium, exits, fire towers, gymnasium, stairways or swimming pool. The cost is low. There is an Exide System for as little as $150 which operates for less than one cent a day. Why not get full details on this essential, economical improvement? We will gladly send our bulletin giving complete information and explaining the free Exide Engineering Service. Fill out the coupon and mail it — there is no obligation whatever.

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WHAT IS EXIDE EMERGENCY LIGHTING?

An Exide Keepalite Emergency Lighting Battery System automatically and instantly supplies abundant light, to a single room or an entire building, *in case the normal electric current supply fails.* It is fully automatic, and absolutely dependable.

Refer to Sweet's Catalogue, Section 27—Page 1

Exide Keepalite
EMERGENCY LIGHTING SYSTEMS
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Send me, without obligation, full information on emergency lighting protection for schools.

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Title.....

Name of School.....

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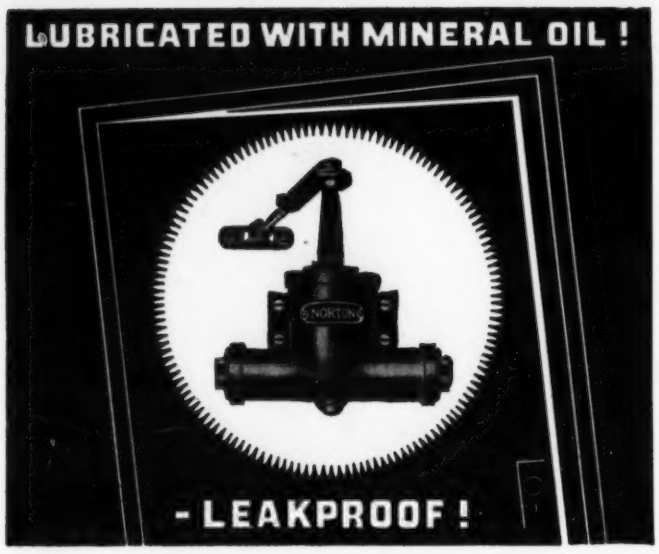

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With the problem of leakage solved—with practically no friction and wear because all working parts are properly lubricated, Norton Door Closers insure long efficient service.

WRITE FOR THE NORTON CATALOG

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Division of the Yale & Towne Manufacturing Company
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DOOR CLOSERS FOR ALL SCHOOL DOORS

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The Newton Trade School is well known throughout the country and is rated as one of the leading schools in its field. The officials of this school, after careful consideration, decided to replace the existing clocks with a Holtzer-Cabot Clock System. This installation will provide all parts of the building with accurate time, hourly supervised by a Holtzer-Cabot Master Clock of the latest type.

Holtzer-Cabot has available time and program clocks to meet the need of every school whether large or small. These systems are engineered to suit the requirements of each installation and are economical to own and operate. Holtzer-Cabot Clock Systems have the approval of school boards and the endorsement of educators.

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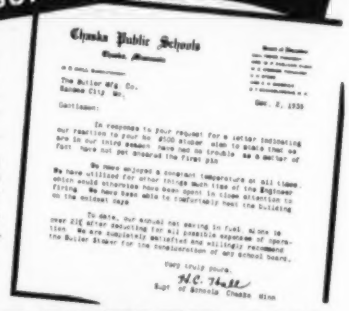
125 Amory Street Boston, Mass.

"21% NET SAVING IN FUEL ALONE" SAYS SUPT. H. C. HALL


Omaha Public Schools

Like Mr. Hall, every other school official using the Automatic Butler recommends it for the consideration of any school board. Write for interesting, first hand information.

THE AUTOMATIC BUTLER COAL STOKER

CUTS HEATING COSTS 15% TO 50%

ELIMINATES THE SMOKE NUISANCE

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PITTSBURGH CHAIN-LINK FENCE is made to resist not only the ravages of time and the elements, but also the inevitable accidents of everyday use. Designed for resilience, Pittsburgh chain link fabric *absorbs* shocks, and after ordinary impacts, returns to its original shape. Erected on a strong frame of heavily zinc-coated steel, it will give many years of highly satisfactory service. Write today for estimate of cost of fencing your school yards, playgrounds, swimming pools, football fields, baseball diamonds or any other school property.

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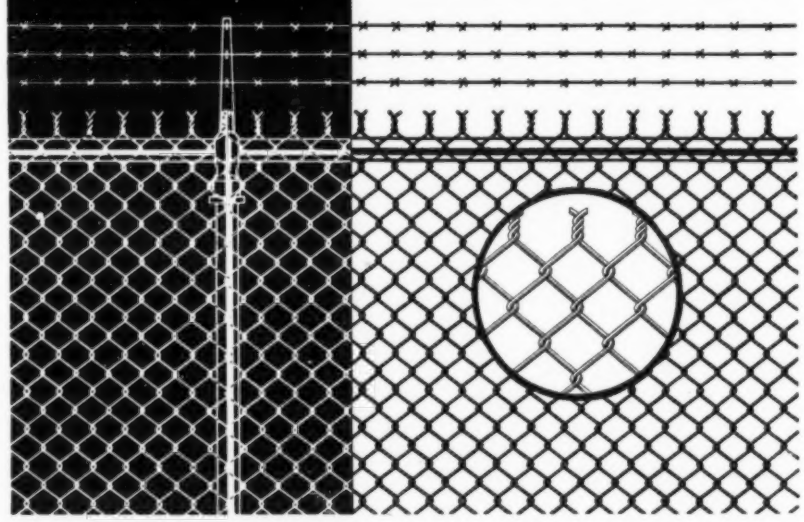
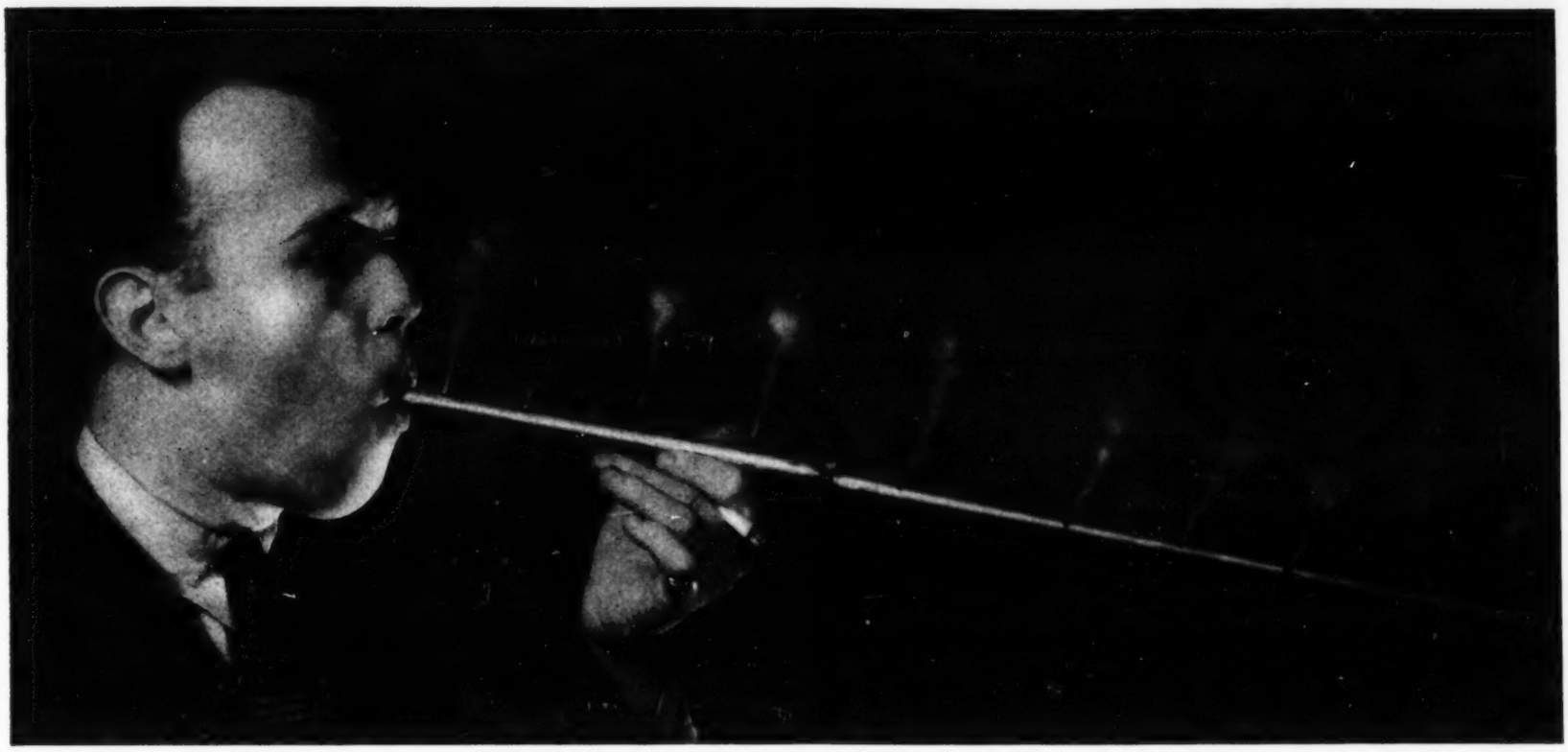




A strange pipe . . . important to the COMFORT AND HEALTH OF SCHOOL CHILDREN

DID you ever see a pipe like this? It is a Nesbitt steam-distributing tube, really a tube-within-a-tube for about half its length. One of these assemblies is *inside* each regular condensing tube in the copper-fin radiator of the Nesbitt Syncretizer heating and ventilating unit.

The man is demonstrating, with cigarette smoke, how even the smallest supply of steam is apportioned equally, through small openings in the steam-distributing tube, to the entire area of the condensing tube.

This Nesbitt development has important advantages:

It assures air-discharge temperatures that are uniform over the entire face of the radiator, thus helping to eliminate stratification.

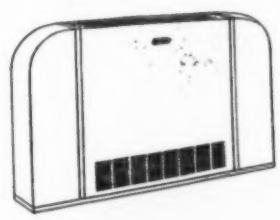
It makes possible the closest control of air-stream temperature, and the elimination of cold drafts and overheating.

It effects sizable fuel savings.

In short, it enables the Nesbitt unit to attain new standards in heating and ventilating, to create Perpetual June in the Classroom.

If you are planning the erection of a new school, it will pay you to specify Nesbitt Syncretizers. The whole story is interestingly told in Publication 226, *The Story of Syncretized Air*. Send for a copy today. John J. Nesbitt, Inc., Holmesburg, Philadelphia, Pa., or 11 Park Place, New York City.

THE NESBITT SYNCRETIZER



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Direct Dialing Built-in Combination Locker Locks
Outstanding Features

1. Direct dialing (dial direct to combination numbers.)
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Now it is possible for you to have—in a single locker lock—every feature to be found in other combination locks. Plus a number of new features that are not in any other lock. That lock is the CORBIN Simplified Direct Dialing Combination Built-in Locker Lock—built to meet the requirements of the user.

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Made with or without Masterkey Feature

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The American Hardware Corp., Successor
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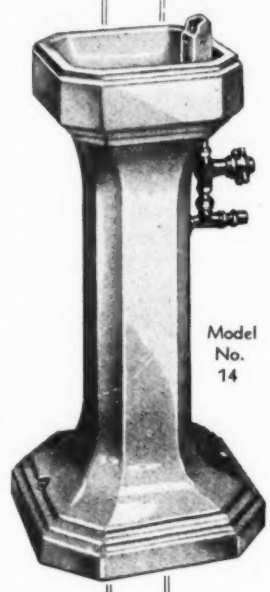
R-S

For school appearance, your drinking fountains should harmonize with the surroundings. For student safety it is absolutely essential that sanitation be carefully considered before making a selection.

The development of the R-S line of drinking fountains has progressed with the idea of sanitation, as well as economy and beauty, in mind at all times. The model illustrated is one of the latest designs that assures you of sanitary drinking always. The integral angle stream non-squirting bubbler head prevents back flow of water. There is no possible chance of contamination from clogged drains —because the nozzle extends above the bowl rim.



Model No. 14

Information on other designs in pedestal or wall type, suitable for every requirement, will be furnished on request. Write today!

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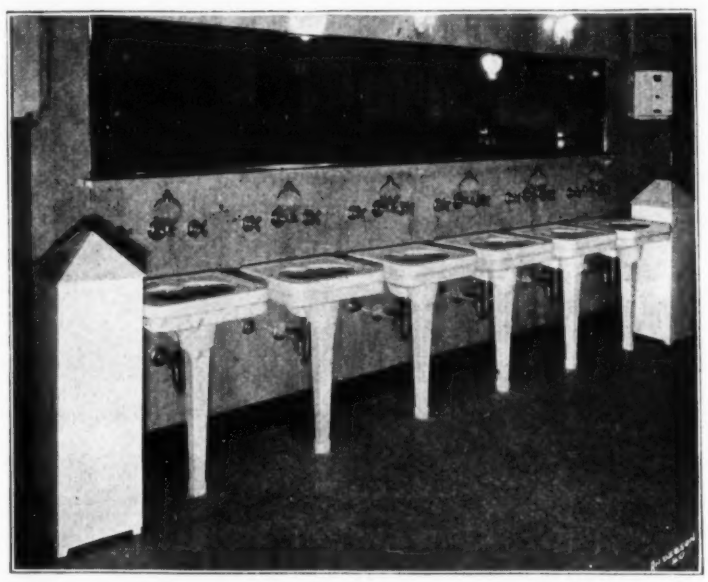
Spotlight
For 30 years SLOAN Flush Valves have been in the spotlight—the standard of comparison by which all other flush valves are judged.
Yet this superiority does not add one cent to your cost. There is a genuine SLOAN Flush Valve in every price range that costs no more than others, and actually saves dollars over the course of years.
SLOAN VALVE CO.
— CHICAGO —



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will help you . . .
Keep your washroom CLEAN, neat, attractive.

The large, swinging top makes it easy to deposit waste . . . from a small scrap of paper up to newspaper or linen towel. Solars have a fascination that never wears off . . . They invite use. They are odorless and are always closed.

Many schools also use them in the corridors, toilets, cafeterias, shower rooms and elsewhere. The cost is moderate. A variety of sizes and finishes to harmonize with surroundings.

Particularly appropriate in new buildiings and in remodeling programs.

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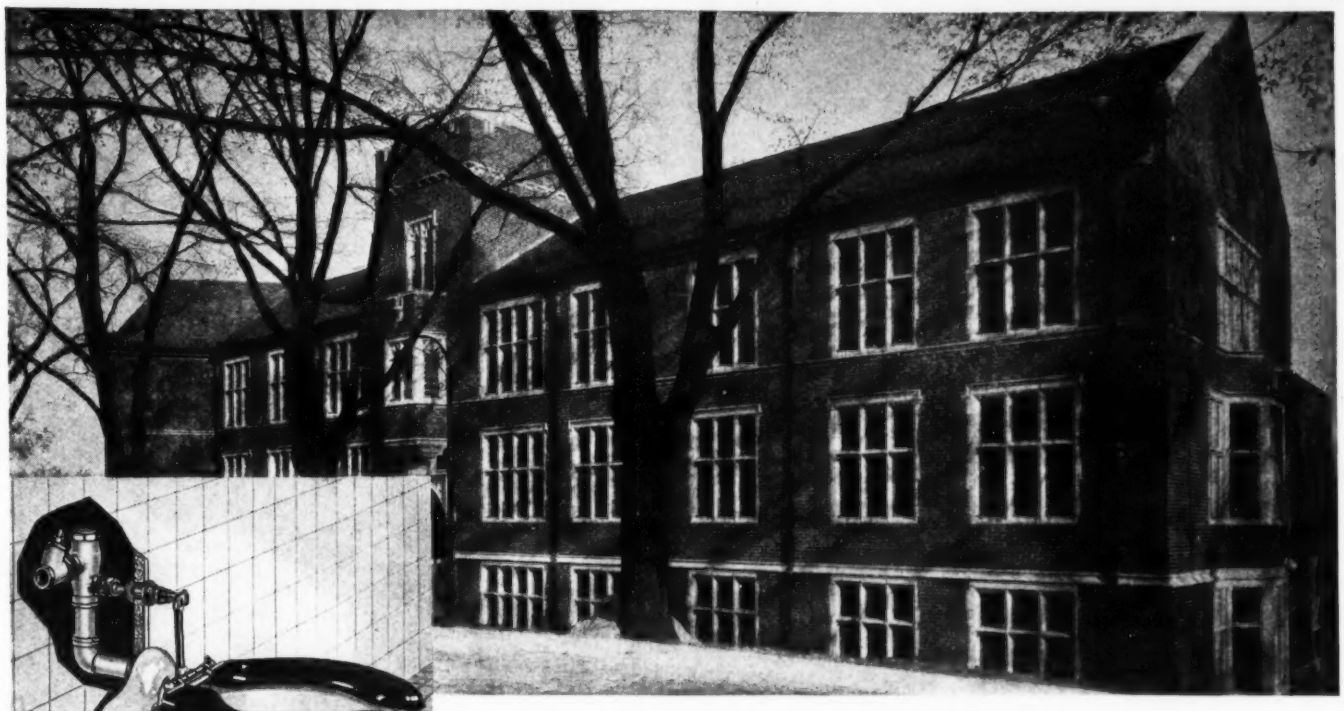
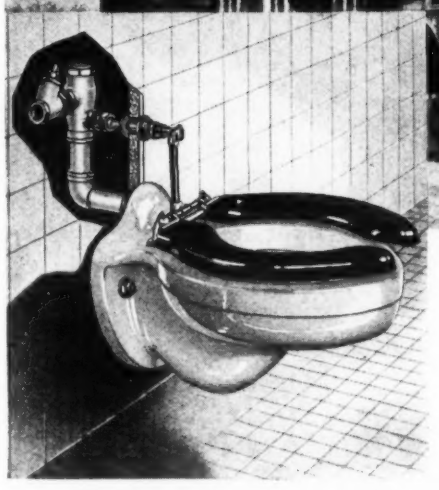
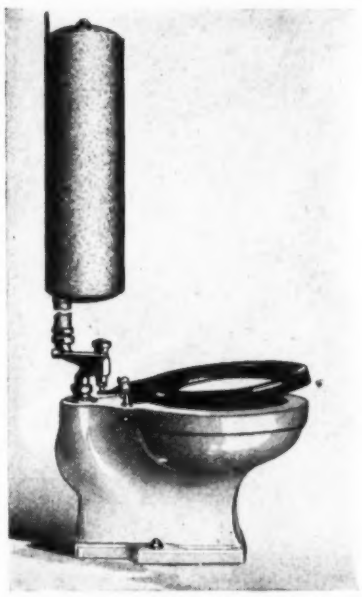




The Crane LOWALL closet for compact installation, hygienic posture, vigorous seat-operated flushing action.



The Crane SANTON automatic seat-operated pressure valve closet combination for small supply lines.

CRANE CLOSETS
DESIGNED FOR
School Service

Crane plumbing fixtures for Schools are designed to fit a maximum number of different installation problems—to allow the architectural engineer maximum flexibility in layout while assuring a perfect plumbing job.

The Crane LOWALL closet, with its twin siphon jets, short vigorous flushing action, and neat compact design is typical of Crane closets for school service. A wall type closet, its rim is only *ten inches* off the floor. This extends its use to all grades and provides for the most hygienic posture. Equipped with seat-operated direct flushing valve.

Where supply pipes are small, schools may still enjoy the advantages of seat operated flushing valve action by the use of the SANTON full siphon jet closet equipped with pressure tank which delivers a generous water supply to the closet.

Whatever your plumbing problem, Crane Co. already has or will find the answer whether it concerns closets, showers, fountains, lavatories or other types of sanitary equipment.

CRANE

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PLUMBING AND HEATING MATERIALS

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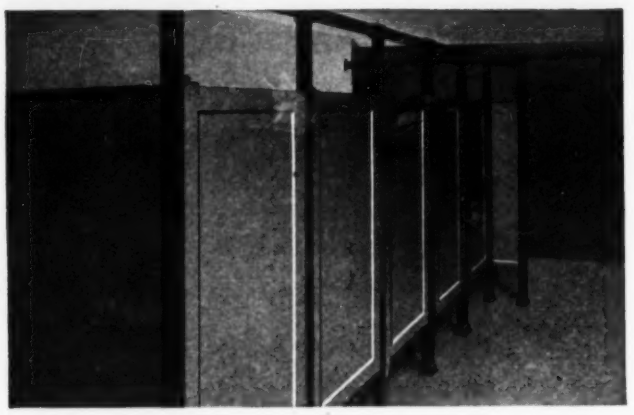

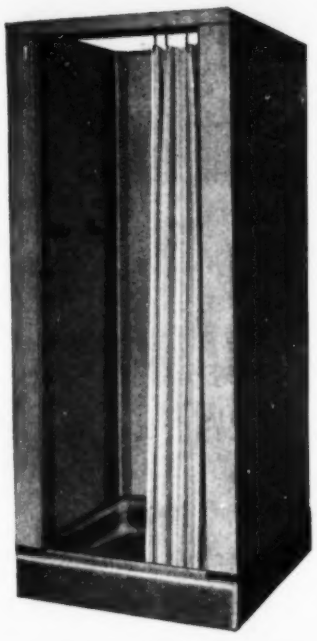

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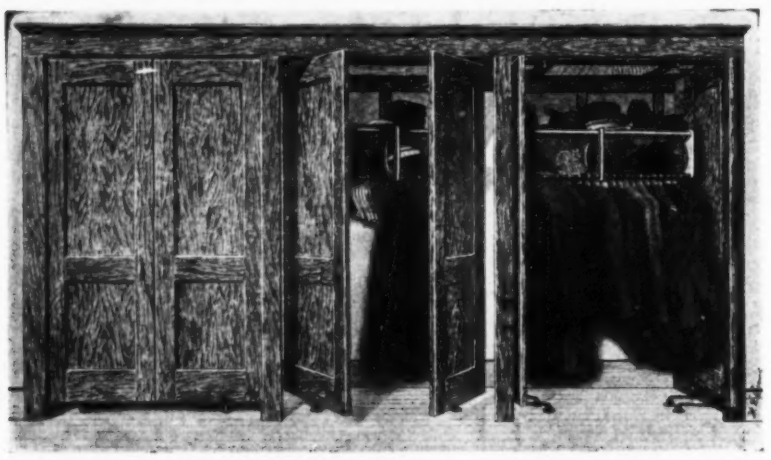

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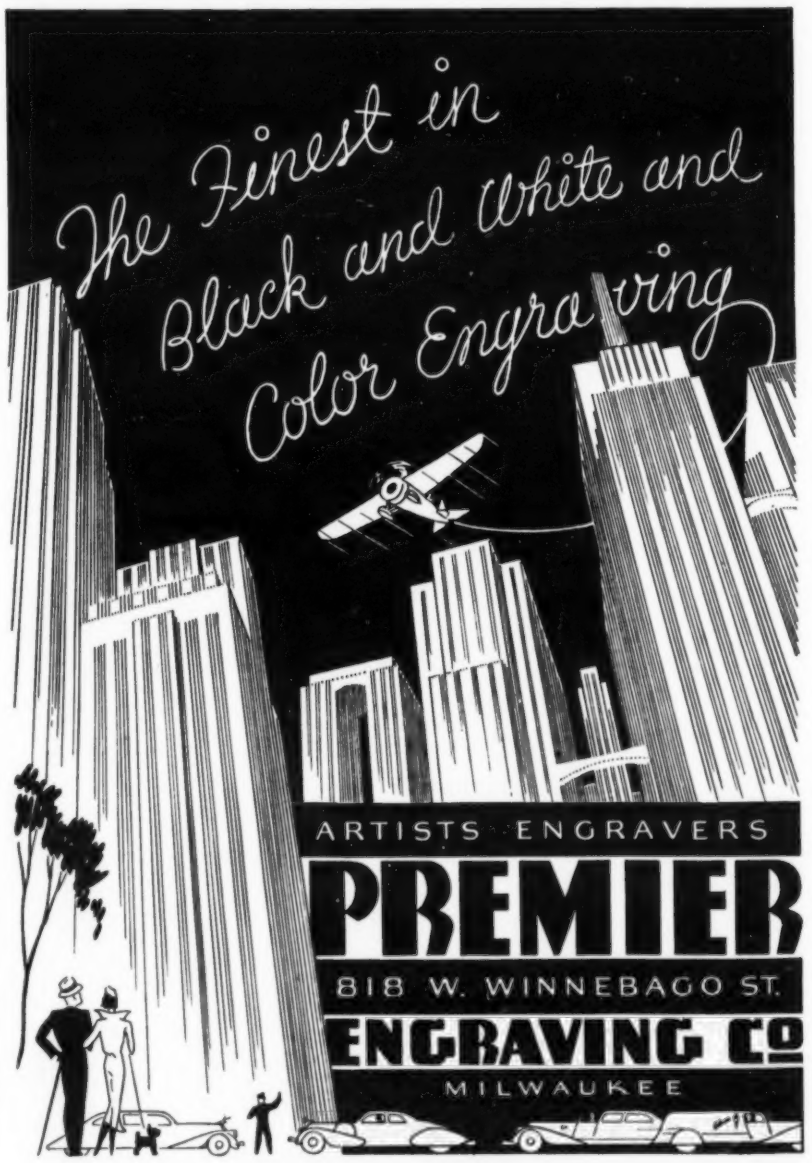

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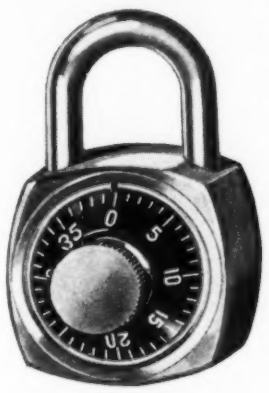

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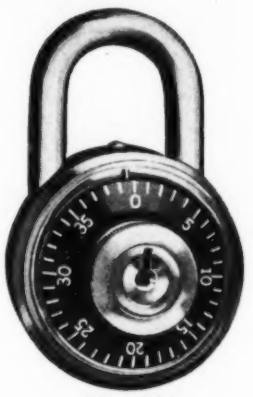

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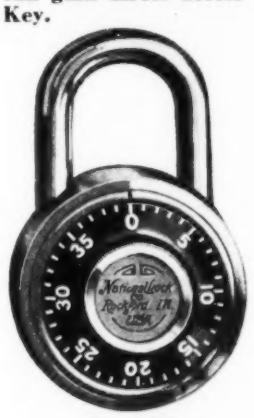

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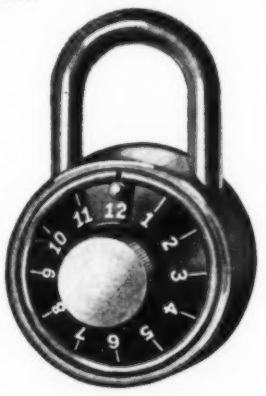

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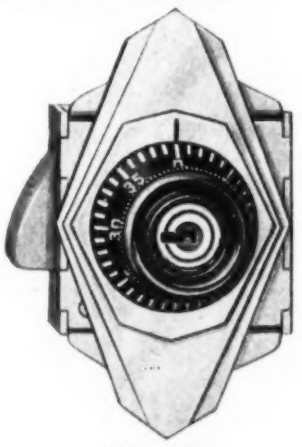

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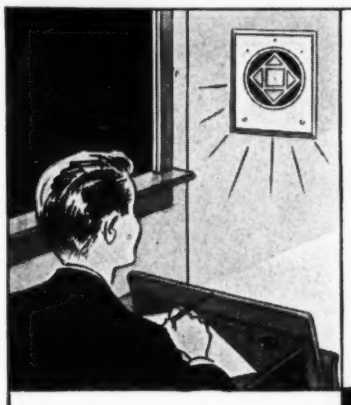

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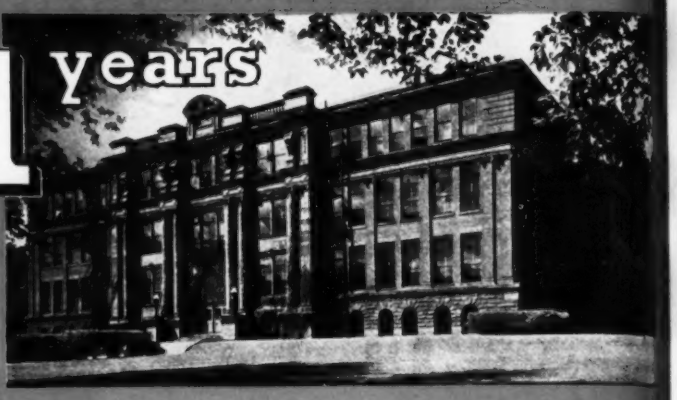

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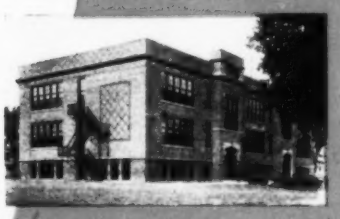

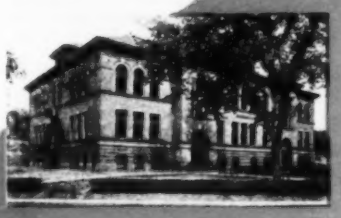

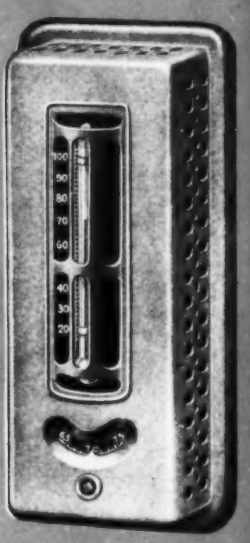

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VOL. 92
No. 1

JANUARY,
1936

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Let's Look Ahead!

A newspaper editor recently said: "Let's look ahead! Supposing no new schools are built now. 'Why didn't they build the schools when the federal government was willing to pay almost half the cost?' Such will be the complaint a few years from now."

This is a sensible approach to the schoolhouse question. There are some school districts that do not for the moment possess the taxability to cover the 55-per-cent cost of a new school structure. But there are many more that can. Where they cannot shoulder the 100-per-cent burden of a building project, they can certainly bear the 55-per-cent obligation. In other words, where a project involves the expenditure of $100,000, they cannot afford to reject a gift from the federal government of $45,000.

All this, of course, presupposes that there is real need, present or prospective, of more school accommodations. School plants become obsolete. That is certain. It is also quite natural that the pupil population is increasing and shifting from year to year. Timely anticipation of future needs should mean a five-year look ahead.

In the light of the grant offered by the federal government, it becomes expedient that the look into the future be undertaken in the light of present conditions. In a comparatively few months the funds offered by the federal government will be exhausted. Many school systems have availed themselves of the generous offer. Many more are expected to do so.

THE EDITOR

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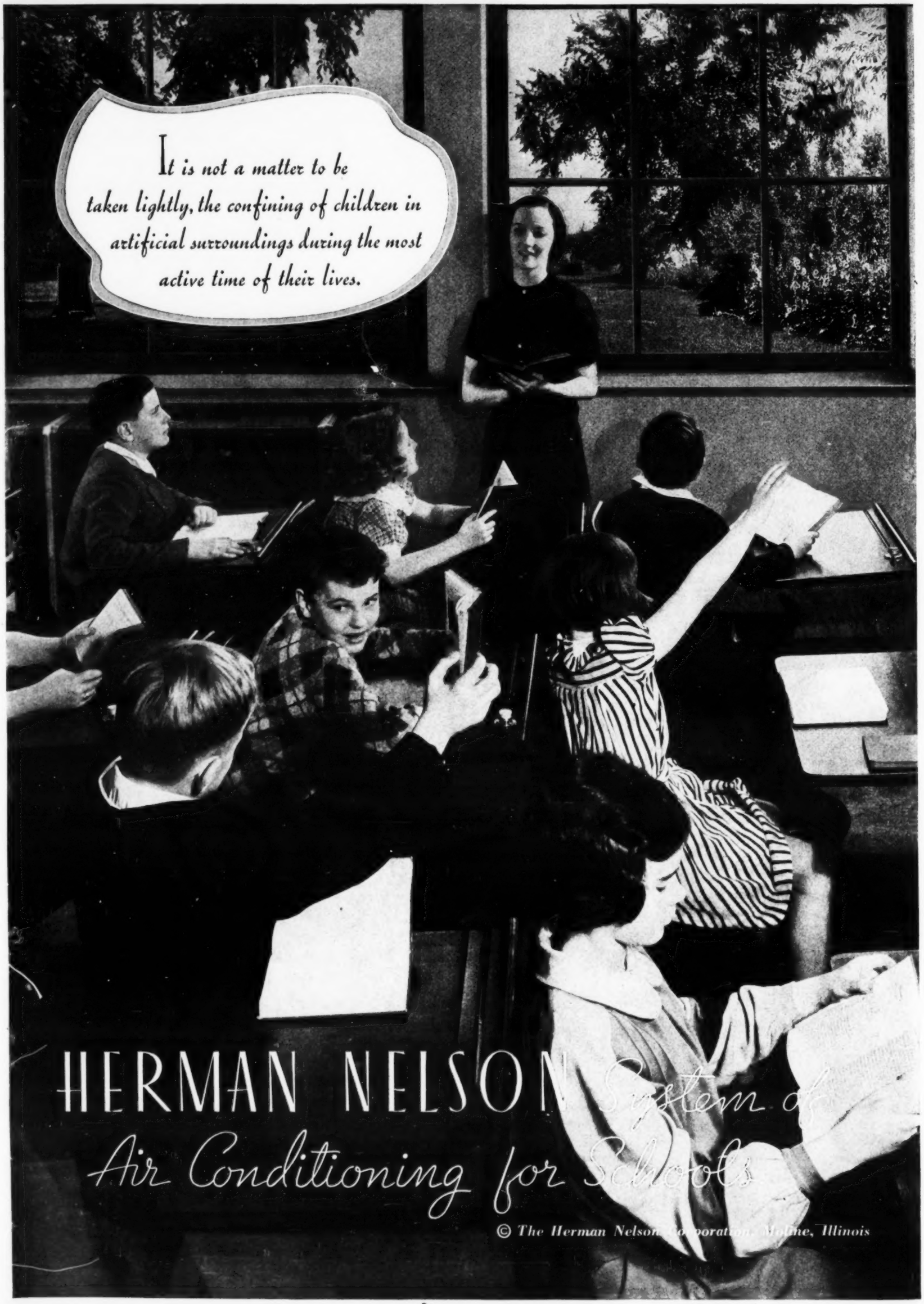
Editorial Material — Manuscripts and photographs bearing on school administration, superintendence, school architecture, and related topics are solicited, and will be paid for upon publication. Contributions should be mailed to Milwaukee direct, and should be accompanied by stamps for return, if unavailable. Open letters to the editor must in all cases contain the name and address of the writer, not necessarily for publication, but as evidence of good faith.

The contents of this issue are listed in the *Education Index*, Member, Audit Bureau of Circulation and Associated Business Papers.


It is not a matter to be taken lightly, the confining of children in artificial surroundings during the most active time of their lives.
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THE AMERICAN
School Board Journal

Volume 92, No. 1 JANUARY, 1936 Subscription, $3.00 the Year

Some *Fundamentals* of School-Building Planning

H. W. Schmidt[1]

The writer has been confronted with questions pertaining to the title of this paper for a good many years, and without being very exact as to data his experience has been that those who should be most interested in these fundamentals are not so concerned about them. This refers to all groups of those who have to do with the matter of school-building planning — superintendents, school-board officials, principals, and architects — and it is interesting enough that this order seems to parallel in a great measure the interest displayed. Nor is the writer alone in this viewpoint, as years of contact with others who are in a similar position has shown.

One may thus wonder why such a lack of interest should exist at all. Is it due to the fact that material is not formulated in collated or usable form, or is lacking? Or that it is not sufficiently pertinent? Or even that such material is not needed? One can hardly subscribe to the last, as experience shows that it is needed, that it is rather essentially necessary. May, therefore, the writer set down a few of his impressions and ideas in the hope that they may be read and used by those who could or should use them?

Of the multifarious questions asked and problems arising out of long years of experience, both theoretical and practical, the writer has been confronted most frequently with a number of situations which to him seem definitely basic to any school-building planning and program, and which will be discussed hereafter. Some officials seem to appreciate the importance of these problems. Others are not so interested for reasons which are not always very obvious. Possibly the following statements may arouse the interest, in which case the writer will feel well repaid for his efforts.

The Present and the Future

The first problem met is that of layout or planning to meet not only the present but the future needs of an educational program. One might say that the former is simple, and the latter unknown. But this is by no means the case. Neither is it a simple matter to accommodate the present program, nor is the future a blank.

Let us be specific and take a case study as an example. The present quarters of a good-sized elementary school, erected about thirty years ago, have been outgrown, both numerically and educationally. The first plan for enlargement presented by the architect — not in consultation with anyone in particular — showed six additional classrooms, a new office, a very small library, and a very large gymnasium with a playing floor 48 by 80 feet and bleachers to seat 600. Extensions were to be in place of the perfectly good, though old, structure. The office was 10 by 7 feet, over the second-floor stairs — you know the type. There were two shower stalls for the girls and two shower heads for the boys, while the dressing and locker rooms were en miniature. No provisions for special activities (beg pardon, they are no longer special, but co-curricular), no restrooms, teachers' or emergency rooms; insufficient locker space. But a lot of useless basement rooms were thrown in for good measure.

The school board did not know what was required, and the superintendent had left it to the architect; the result as just set down would result in a fiasco, and not only physical but educational chaos. Analysis of conditions showed that the classroom space was insufficient, gymnasium and bleachers were overemphasized, the sanitary planning was ridiculous, and the auxiliaries had been forgotten. One might say that this is an exceptional case; not at all; among ordinary folks it is not uncommon. Furthermore, these cases may be multiplied quite indefinitely.

The reader may argue with himself and cry "restrictions" — but there were none which would prevent proper space distribution. "But this was evidently no school architect." Sorry to nip that thought, too — at least, he was supposed to be.

The moral is evident. It is not an easy nor necessarily a simple matter to accommodate even a moderately sized school and its program. As to the future we at least know that certain trends are manifest. We know that modern methods and the newer type of psychology will permit the handling of larger classes, call for extended individualism, permit a larger and freer choice of subject matter, necessitate group activities, entail larger library spaces, promote free expression and the use of multitudinous and varied materials, and — oh, there is no use to continue this list to show that the future is not a blank nor even a mental fog. Far from it.

Co-operation in Planning

This matter of planning, even the simplest project, calls for a high degree of skill and the co-operation of all concerned — and not only those who are in immediate charge. There are usually available, men who have made it their business to study and analyze the innumerable factors which enter into a school-building program. They are not necessarily technicians; the disposition of masses of concrete or stone or steel is not their business, but it is their business to know what the disposition of the *spaces enclosed by such materials should or might well be*. They are both analysts and synthesists. They are to be found in state departments, in schools of education, and in private practice, and they should be used much more extensively than the past indicates. They have nothing to sell, but their experience, both technically and educationally, should be drawn upon more freely, and to pun, it is often obtained free.

The "school" architect, and there are not many such, is rather prone to overestimate his importance and his knowledge; he is quite apt to rationalize and thus is sincere in this respect. No one criticizes his technical knowledge if he possesses it to an excellent degree, but further than this it is the better part of discretion to utilize the other fellow's knowledge and co-operate with all available agencies and talents. It will probably be a give-and-take proposition, and he who is most proficient in this respect "will live long and prosper." It is a matter of attitude, and happy to say there are many who are adapting themselves to it. But there is still much room for improvement.

Research Lacking

Another problem is where *fundamental data* in connection with school-building problems and projects may be found. "Where may I find some authentic material on this or that?" and "Is there any bibliography on the practical aspects of school planning available?" are among the common questions propounded almost every day. What is the number of pupils which constitute an efficient class size? How large should the library be? How many shower heads are needed? Shall fixed or movable seats be planned for? Will the "A" system of heating be more effective than the "X" type? Shall one or five watts per square foot of classroom space be used with the "G" fixture? Are the gymnasium size and its facilities to be determined by the competitive games to be played therein, or should it serve first an educational physical development program? Which is used more advantageously for certain educational activities, the fixed blackboards or the multiple swinging boards, or may their use be curtailed and costs reduced? How much bulletin-board space should be provided? Can you provide too much fenestration, or is there a diminishing-return factor involved in terms of window areas? Is blackboard reflection really a serious matter and, if so, how may it be overcome? What floor covering gives best resiliency with a minimum of wear? Is cross lighting a real or an imaginary defect? These and literally hundreds of similar questions confront us every time we plan for a school building. Who can answer them or where can you find the answers?

As a matter of fact, very few research studies are either available or have been made. Much of our source material is based upon concensus of opinion or empirical data, and many answers are of the type "it has been found satisfactory," or "it has been used for years," or even, "I like it that way"; the subjective vs. the objective, with the latter holding the bag so far.

If we are to progress and occupy the front-

[1]State Supervisor of High Schools and of School Buildings, Madison, Wisconsin.

line trenches in our war upon the uneconomical, the inefficient, the indefensible, and the unsubstantiated, then we need a very large ammunition "dump" of research studies to draw upon, and a reserve of a collected bibliography to fall back upon.

Likely, it is not so easy to determine objective results of this nature, as compared with those obtained for purely technical and mechanical problems but nevertheless the job should be tackled. (Since writing this the author has come into contact with a movement to obtain and set up funds for research along the lines indicated.)

One thought may be expressed here and that is the unfamiliarity of the average technician with the literature dealing with the more subjective phases of school-building planning. It is believed this can be remedied in various ways — it should be someone's job to spread the gospel among the brethren. It may be wished that every school architect might be an educator. But this is utopian.

Adaptability to School Use

A third fundamental is that concerned with adaptability and flexibility of school buildings. The writer has always believed in and advocated the participation of the teaching staff — and even the custodians — in the future building programs, has believed in consulting them all. However, there appears to be some danger in *this* co-operation to the extent that professional enthusiasm and drive are likely to dominate the situation and good judgment discarded in favor of a showing.

Only recently several enthusiasts had convinced their administration that four laboratories, five shops, and a large suite of art rooms were absolutely necessary in a school housing not over 500 students; and the preliminary plans got by on this basis.

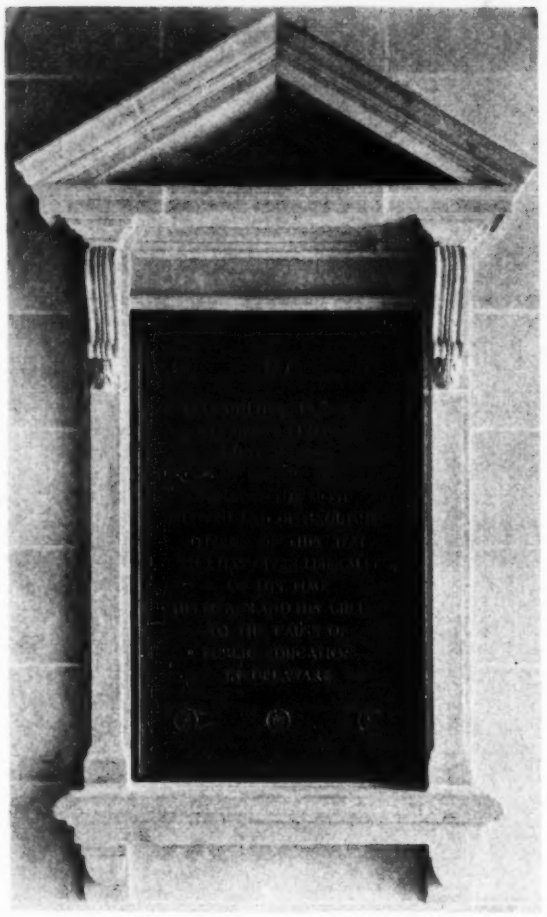
The question of adapting the building to a program is dependent upon the program adopted! A foolish way of stating that the school program must be determined before a building can be efficiently planned; further, it is nearly always possible to set up a new and advanced educational program to take the place of an established one which may and usually was hampered by lack of physical facilities.

At this point a definitely forward-looking attitude on the part of the school officials is essential. Too often their outlook has been dwarfed by past conditions, but in the same degree we are likely to run wild with enthusiasm when confronted by a release from the confining fetters of extreme conservatism or necessity. There are as many stunted programs as there are overexpansioned ones, and a nice sense of balance is essential to prevent both positive and "negative" waste.

Again there are certain trends in education which have been previously mentioned and which must be heeded but which call for a new type of planning. With increased emphasis upon music, the commercial subjects, the library, the physical-education program, vocational activities, etc., we are confronted with the problem of space arrangements — a hodgepodge or hit-and-miss arrangement or utilization of spaces "left over" for this or that activity is no longer defensible. There are some guide lines which may, as a rule, be followed quite consistently. To mention just a few:

Some Guide Lines

The library should be centralized to permit ready access from study halls or the academic centers. Similar activities should be grouped for effectiveness. In case of science sections this has been fairly well accomplished in the past, but not so well for other subjects. Only recently some plans analyzed showed a typing room on the second floor, with the balance of the commercial rooms on the first floor; a mechanical-drawing room on the second floor and the shops in the basement; a library, too small as usual, at the end of a long corridor and far removed from the study hall on another floor — it was a "left-over" space.



BRONZE TABLET, DU PONT HIGH SCHOOL, WILMINGTON, DELAWARE, HONORING MR. PIERRE S. DU PONT (See p. 33)

Certain activities produce considerable noise, and care should be taken to isolate them as far as possible from the balance of the building. And yet we are constantly confronted with gymnasiums with open spectator corridors — an unmitigated and inexcusable nuisance. Not even the plea of economical planning is defensible in such a case. Nor is educational space above gymnasiums always desirable except in small plants, and then sound insulation must be definitely provided. We find the buzz saw blithely cutting its way through oak planks while directly above a student is trying to solve an algebra problem. We'll bet on the saw. Heat and vent ducts pass through music rooms; it's quite all right to let others enjoy music but better directly and at the proper time.

More Flexibility Needed

The basic consideration of flexibility is receiving considerable attention but is far from achieved in most structures. It goes without saying that the unit type of building planning is almost essential today. The school building should be a unit not only so far as the gross structure is concerned but in its internal planning as well, but it is not as easy as it appears. We find plan after plan which makes future additions or changes either difficult or virtually impossible. Too often expensive construction must be removed or the matter put off by the statement that, "we'll add here or there," when, as a matter of fact, it is not such a simple matter. Future extensions or additions should be definitely shown on the plans, both plat and floor. Difficulties are shown up in this way and little is left to imagination.

The modern self-contained type of construction lends itself rather well to future changes; partitions are, as a rule, nonbearing and easily shifted. At the same time there are a few matters which should be borne in mind, such as fenestration, heating, and ventilation of a type which readily permits changes; the arrangement of corridors, stairways, and exits; provisions for certain auxiliaries in relation to future changes, etc. These matters should receive more specific attention at the hands of those interested and responsible than is usually accorded them.

Multiple Use of Classrooms

Though not directly a problem of flexibility, the multiple use of certain rooms is becoming increasingly common and contributes in a considerable measure to flexibility of both building and educational programs. There seems to be no real fundamental reason why art rooms, typing rooms, laboratories, lecture rooms (if they still exist), and even home-economics rooms may not be used by strictly academic classes. The thesis, "a room for every teacher or subject," is not a defensible one especially when proper provisions may be made for the "itinerant" teacher.[2] The differential in planning is slight and by utilizing equipment serviceable for the dual purpose, flexibility of a school plant as a whole is increased, as well as insuring economy of housing.

The Influence of Codes

It has been said that codes governing school-building construction both hamper and restrict free planning on the one hand and facilitate it on the other. Both statements are half truths. If all planners were expert enough, knew enough about everything that goes into a building, were not restricted financially, were thoroughly familiar with educational theories fundamental to building planning, had no pet theories, rode no hobbies, and were not concerned with their percentage involved, then we would probably get a building complex that is perfect and 100 per cent efficient without any codes or regulations. But, there ain't no such animal! Again, codes do not particularly facilitate planning in the final analysis; they do not tell how to arrange spaces, what sizes of rooms to use, how to best dispose of the materials of construction, nor how to be economical in their uses, nor to estimate how much space must be devoted to this or that activity. But they are not useless by any means.

Codes have not been developed overnight nor have they been formulated on the basis of "just because." Virtually all are the outgrowth of an immense amount of experience, the result of research, based upon tried methods, and withal are, as a rule, the result of the pooled knowledge of a great number of specialists. It is also true that these codes are primarily concerned with matters of safety to life and limb and sanitation; they are collections of pertinent data and regulations for the purpose of guiding the designer and bring to his aid facts which he would otherwise have to dig out for himself and which he would use anyway — if he were conscientious and able. In this measure a good code certainly *facilitates the disposition of materials but it also as certainly does not aid the designer in the disposition of space* except in a very minor way.

School building and other codes are of two kinds, local and state. This condition is not an especially necessary one and often leads to both confusion and friction; it is like the automobile and safety codes — national, state, and local. It's a tough old world. Fortunately there is not a great deal of difference between the two types, except that local codes are likely to be more exacting as to details, State codes, as a rule, take preference over others and are inclined to be somewhat more liberal. The designer must watch his step and conform to both, neither can nor should either be ignored, or one used to the exclusion of the others.

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[2] AMERICAN SCHOOL BOARD JOURNAL, April, 1929, pp. 42–44.

Legislative Codes

There is one phase of this situation, however, which the writer decries and that is the purely legislative codes. They are nuisances. In the first place, codes are highly technical and in that measure are outside the scope of a legislature to deal with or approve. Secondly, such codes are quite fixed and very difficult to change; often vested interests are in the offing and prevent reconsideration. Third, they are likely to hinder progress due to their immutability. In school planning and construction as well as in other lines, progress is rapid, and literally new factors are brought to our attention overnight. Codes should be made so flexible that they may incorporate new ideas and new data in order to serve the designer as needed.

It is believed that these facts about codes are among the important fundamentals of school-building planning. I have heard it said that this or that code or part is "not good" and should, therefore, be ignored. One can hardly subscribe to this. If the codes are legal guides, they should be followed; in fact, must be. If they are out-of-date or unusually onerous, or if certain parts are objectionable, it is the job of those interested to get a change. With a properly drawn code and a reasonable administration a change is not difficult. But don't break the law — correct it if necessary!

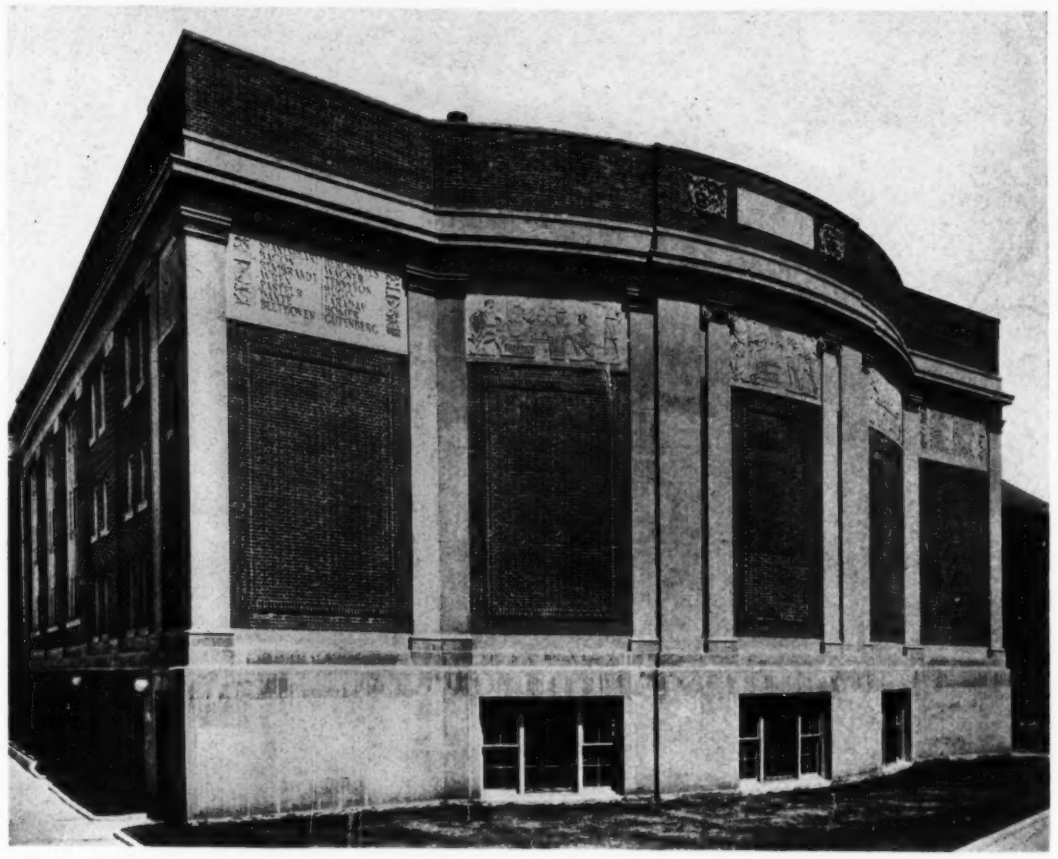
The Future Effects of Construction

One of the factors quite frequently neglected or possibly ignored is the effect of age upon a school building — deterioration, both internal and external. Fortunately we do not have termites to deal with very often but Father Time is no respector of buildings and old man Depreciation works right along. The moment a building is completed, and it does not even have to be occupied, deterioration begins; slow, it is true, but sure, nevertheless.

It may be argued that, if the best and most suitable of materials are used, the factor of depreciation may be neglected, at least for a good many years. If this were possible, good and well, but practically a compromise between first cost and ability to finance must be reached, and it is here the skill of the designer in disposing of adequate materials will show up. The principle of using proper materials and construction with the future in mind is of importance. A remissness in this respect will later show up "like a house-on-fire." Too often a designer jeopardizes his whole future by neglecting, either purposely or inadvertently, to cater to this principle. One can cite plenty of cases to prove this. Even if the owner should call for materials subject to rapid or sure deterioration, the designer should not be a party to this. If he does he will be the "goat" later — as surely as death and taxes. It has never been known for an owner to shoulder or accept the responsibility in this or any other respect, for that matter, later. No, no, do not be tempted.

Nor should the exterior of a building be the only portion to receive consideration in planning for permanence. The internal structure is just as prone to suffer from old age and fatigue as the exterior; in fact, it is more likely to, as the weather depreciation is more obvious and is certain to receive better treatment originally. Falling plaster, creaky stairs, warped trim, settlement cracks, wearing floors, peeling paint, and what not — all bear evidence of this — to say nothing of the depressing appearance of poor furniture and seating. When we bear in mind that depreciation and repairs upon school buildings as a whole approximate $100,000,000 a year, we begin to appreciate what a saving may be made in the future by paying attention to this fundamental of school-building planning.

There is another side to this situation which intrudes itself very definitely in many instances,



EXTERIOR VIEW OF END OF AUDITORIUM, BROOKLINE HIGH SCHOOL, BROOKLINE, MASSACHUSETTS (See Page 25.)
Kilham, Hopkins & Greeley, Architects, Boston, Massachusetts.

even in the immediate future, and that has to do with fire insurance, a form of protection required by law in many states and usually provided by all school authorities. It is not within the province of this article to discuss the relative merits of state, local, or mutual risk companies nor the type of policy involved, but it is certainly not amiss to call attention to physical risks often incurred by injudicious planning. One has but to scrutinize the base and published premium rates on school buildings to recognize the truth of this.

Many items of construction draw penalties, in fact many more than those which provide credits. For example, on the debit side we find storage closets often tucked away in "waste" spaces — even fireproofing does not entirely remove the hazard. Then there are the hazards connected with the heating plant such as unduly long and improperly protected breechings, unprotected ducts, steam pipes insufficiently insulated, etc. Defective wiring and skimping on a new installation, heating and commercial electric devices not protected by tell-tales, cheap stage wiring, etc. The lack of fire doors at strategic points and the omission of fire walls or fire stops; improper stage design especially where public performances are to be given — all draw penalties. Many penalties are assessed against moving pictures in school auditoriums.

Only recently a design for a stage construction was so planned that it would get by as nonscenery space when the architect knew full well that later it would be used for theatrical performances with combustible stage trappings. A fifteen per cent differential in rates was imposed so long as the building was occupied and used in the above manner. That is poor business in a number of ways.

Roof construction with wood shingles, a cheap "tar" roof, a combustible construction for attics and similar spaces used as gathering chambers for ventilation purposes, an open type of electric motor mounted in spaces not fireproof, etc. But why continue. It may thus be appreciated that there is an intimate relation between construction costs and insurance premiums; high initial cost *may be* economy but not necessarily — it is easy to waste but it is here, as elsewhere, that the good architect lets his light shine, perhaps under a bushel or unappreciated. But then, virtue is its own reward.

School-Building Surveys

One cannot close this rather brief presentation without referring to at least one other basic factor in school-building planning, and that is the relation of the new school to its future environment, growth, and probable shifts of population. Of course it is often agreed that an architect is not necessarily concerned with this problem which had better be left to someone else; he plans the structure desired — by someone else. True as an abstraction, but not true otherwise nor of a first-class school architect. As one man said to me recently: "It makes a whale of difference to me and to others whether this school is going to be half filled or whether I'll have to plan for a larger extension in the near or even distant future." That statement showed the architect recognized the fact that he was a cog in a rather complex machine.

A survey of the whole situation should be made before a building is planned. Of course, it is not the architect's business to undertake this — he could not. But no board should neglect to reinforce its judgments on the basis of such findings, nay even reverse itself if necessary, though the board does not like to admit it is wrong like other human beings. It is no disgrace to back down, it is only the small fellow who will not in the face of evidence contrary to his beliefs. And the architect should see to it that these facts are at hand before planning is started; he will ultimately benefit by this attitude. The writer has plenty of evidence to substantiate his statements, having headed up dozens of school-building surveys — the results have always shown the wisdom of this agency fundamental to planning.

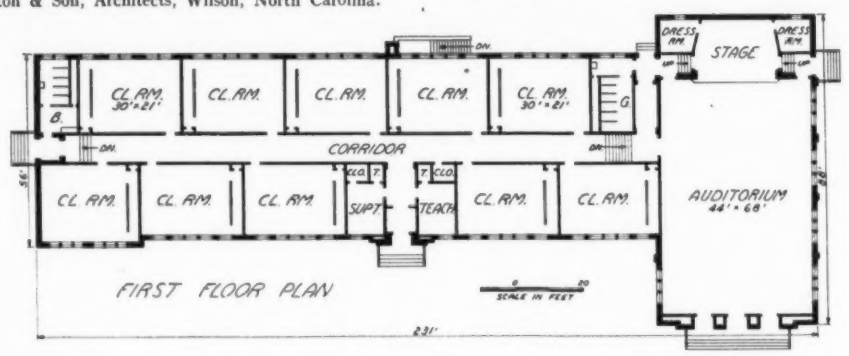
It is quite possible that this article has "carried coal to Newcastle" for some readers and may smack of reiteration to others; to some few it may seem rather trite and some read nothing new in it. Well and good. But long years of experience have shown that there are still enough people left who might, and let us hope, will profit and learn something by reading this — to them I dedicate what has been written.

GENERAL EXTERIOR VIEW. ICARD PUBLIC SCHOOL. MORGANTON. BURKE COUNTY, NORTH CAROLINA
Chas. C. Benton & Son, Architects, Wilson, North Carolina.

A SOUTHERN RURAL-SCHOOL-BUILDING ACHIEVEMENT

The Icard School at Morganton, Burke County, North Carolina, represents a splendid achievement in Southern rural-school planning and construction. The situation required utmost economy, and this has been achieved by careful selection of local materials, by extreme simplicity in design, and by straightforward planning. The building serves an elementary school with eight grades and a kindergarten. It is at the same time a community center

(Concluded on Page 74)



AUDITORIUM ENTRANCE

MAIN ENTRANCE

ICARD SCHOOL, MORGANTON, BURKE COUNTY, NORTH CAROLINA. Charles C. Benton & Son, Architects, Wilson, North Carolina.

Campaigning for a School-Bond Issue

E. D. Jarvis[1]

This article is an attempt to crystallize most of the major tasks encountered and duties accepted by an administrator in fostering a building program in a small town. Most of it is a summary of procedures followed in one such district, but added suggestions are given to guide in other campaigns.

I. Surveying the Field

The first and foremost consideration in launching a campaign for a bond issue is to allow more than what appears to be sufficient time for the development of the public's ideas. Beginning with the first work of the superintendent in collecting data, a full year was available for the entire campaign. Data, therefore, was collected in the autumn and early winter of one school year for use in the concentrated efforts to be put forth a year following, previous to the election.

The administrator's first task is a rather indefinite and difficult one. He must discover attitudes. He must know something of the feeling of his board of education before launching his work. Even the administrator new in his position will be able to diagnose the feelings of a majority of his co-workers. The group will be either fully acquainted with the needs of the school or they will be antagonistic toward a plant addition. If they are acquainted fully with the needs, they may be expected to be interested in and definitely for a building program. If they are uninformed, they will be definitely against any building plans. In the latter case the superintendent's first task is a quiet campaign of education. Facts will be a determining factor in their conversion. Opinions count for little.

After the members of the board of education had been led to express themselves wholeheartedly in favor of building plans, the next job was to sample the feelings of a few leading citizens of varied business, religious, and social connection. An effort was made to keep the purpose of these informal conversations from becoming apparent to those interviewed until they were known to favor such a proposal. From these conversations the interviewer obtained an idea of the type of objections to be encountered, the type of people who would make them, and what methods would explode these objections.

A similar diagnosis was made of the pupils to discover how much of the inadequacy of their school surroundings was realized and to discover how far they might become "missionaries in the field." The teaching staff furnished no problem, of course, but an effort was made to understand how fully they understood the school's needs. An evaluation of a teacher's effectiveness in a campaign can be readily made by considering the length of time she has resided in the community and whether she has maintained a family residence there. A teacher who has been retained fifteen or twenty years in one position and whose home is in the community, should have some influence as well as a thorough understanding of the community.

The superintendent desired, at this point, to plan the outline of his proposed campaign. He made an effort to determine how extensive it would have to be, what means he would use, and how long the intensive part of it should last. Perhaps, if the school district had been a larger one, the town in which the schools were located would have furnished only a small part of the voters. In that case, the program would have been enlarged to include the rural voters, and methods of publicity which would best affect them would have been perfected. Since the school district was not unusually large and the village was the geographical center for it, it was judged that a campaign concentrated on the business men and village voters would prove effective. These people are usually the direct taxpayers, and if they can be convinced and enlisted as supporters their influence will carry.

A conference with the local editor revealed that assistance could be expected from him. Usually a newspaperman realizes the significance of a school-construction proposal, its value to the community, and its importance to subscription and advertising patronage of his paper. Even if he is not cordial to the idea himself, he is invariably ready to print any material of a factual nature which the superintendent hands him. It is rare indeed that an editor refuses to lend his aid in such an undertaking. If he does. the campaign will be a difficult one. In addition, leading citizens who were known to favor such public improvements were consulted and all of their ideas as to means of publicity were considered.

The time to be given to the visible, final campaign will vary in different communities. For the community made up of citizens not particularly progressive, especially in school matters, three or four weeks of intensive work is better than a prolonged campaign. Their education will have to be begun early and carried on unsuspectingly over a long period, but the intensive campaign will best be short. In the enlightened and progressive community made up of people already interested in child welfare, a long and logical factual campaign will be found more effective. People of the former class will usually respond to emotional and flaring appeals. Their ambitions will be fired and their sense of obligation enlarged if the proper stimuli are provided. The wise director of the campaign will arrange for this enthusiasm to be at its height on election day, however, for these quickly fired ambitions are usually also very quick to cool.

Of all the superintendent's duties the largest one was that of making a detailed study of the local schools. If it is possible, an entire school survey should be accomplished. Since this was impossible due to lack of time, it was imperative that at least a building survey be made. In an Ohio town, this building survey provided the data needed for the most desirable type of campaign. Many additional points would, no doubt, have been discovered if a complete school survey had been worked out. The limited survey gave the background of the building situation, with data concerning the existing school structures, their age, construction, cost, maintenance costs, etc. The buildings were discussed in detail, describing floor plans, general structural defects, room and equipment inadequacies, and dangers. The limitations were listed briefly. The buildings were scored with the Strayer-Engelhardt school-building score card. A description of the proposed site, its desirability in place, its adequacy in size, and possibilities for expansion, was included. This information was followed by a list of recommendations. The town's ability to provide the facilities embodied in the listed recommendations was discussed. As a basis for approval, the indebtedness of the district was discussed, the total school levy for maintenance purposes and the total tax levy for all purposes were made known. All of these data were collected for about ten years previous, so that tendencies could be pointed out. A comparison between the home district and other districts less fortunate, yet providing better school plants, was made and served the desired purpose admirably. Tables of per-capita pupil cost were effective when compared with other districts where financial conditions were less desirable. Any school-building survey will do well to discuss briefly any possible future consolidations of territory and how the school may meet these changes.

After the survey had been completed, the data were used in several ways. First of all, the facts were confirmed and sanctioned in full by the State Department of Education. The recommendations setting forth the building requirements and other improvements needed, were definitely satisfactory to the State Department. A letter acknowledging this fact was kept on file and was used. Portions of the data were used in printed form from time to time. The survey was the basis for speeches and discussions. Extra copies of the full survey were available to citizens.

II. Laying the Foundation

The superintendent began his program of enlisting the support of the board of education by acquainting them with the schools' needs. This work was done earlier than any other. The members were taken to visit new buildings recently finished or under construction in near-by cities so that they might understand how completely their schools were failing to meet their obligation. Territories of similar size and comparable tax valuations were selected and care taken to point out the resulting advantages. The opinions of members of boards of education and superintendents in these districts were secured.

At this time, an inspection of the schools was made. The inspection report from the State Department, which embodied all the shortcomings of the schools, was published and then kept on file. A conference with officials of the State Department of Education revealed just what they expected to do in case their requirements were not met. This information was used as a strong argument for the passage of the proposed bond issue. All of the legal aspects of the proposal were investigated and the facts of the bonding limits of the school district, size of plot, details of the building code, annexing territory, to whom bonds could be sold, advertising the proposal, etc., were made known.

The education of the public to the general needs of the modern school was begun next. The exact focal point of the general or abstract arguments now brought forth, was not too obvious. The newspaper carried several general arguments outlining the value of education, the tremendous proportions assumed by it throughout the country, its money value to the individual, as well as the better economic conditions resulting from improved educational opportunity. Since the opportunity presented itself, a movie of the school, showing existing conditions, was taken and shown in the local theater. This provided an opportunity for showing those parents who had not been in the school buildings just what conditions existed. An account of the legal aspects in which the school buildings were deficient was published with a statement of the requirements of the State Department of Education, which the local buildings were ignoring. At the alumni banquet and other functions including groups of people closely allied to the schools, an account of the situation was given.

About this time an architect was employed by the board of education. No little weight may be given to this matter. The selection of a good

[1]Superintendent of Schools, Perrysburg, Ohio.

architect has much to do with the passing of a bond issue. First of all, of course, he should be a reliable man in his vocation, experienced in planning school buildings, and a man of sufficient personality to impress a community. It is well to employ a man who definitely works with and for the local board of education and coincides with its wishes, even if it is necessary to sacrifice a second consideration, that of securing an outstanding school specialist. The administrator usually knows the needs of the schools and can direct an architect who has had some school-planning experience, so that no educational principles are violated in the plans. The architect will know the state school-building code, he will have engineering service at his command, and he will be a good architectural designer, so that the general architectural features will be cared for. Architects with exalted opinions of themselves and their abilities, even though they be specialists in the field of school designing, cannot succeed and should not be employed. An architect with other work in the near vicinity will usually give better service, especially in his supervision of the construction, than an architect whose office is located at a considerable distance.

Some of the completed buildings of the architect who was chosen were visited by the local board of education. They were studied carefully for mistakes. Every architect, even the best, is prone to make some mistakes in his buildings, and these are usually similar in all his projects. The same errors may be anticipated to see that they do not occur again. School officials responsible for the buildings visited were consulted. Their opinions of the architect and his completed jobs assisted the local board of education in making its selection.

After *one man* had been selected as reliable and efficient, he was informed in detail concerning the needs of the proposed building and told to draw up preliminary sketches for approval of the board of education and the superintendent. It is necessary to select the architect before expecting any sketches which will be worth considering. It is impossible to use preliminary sketches as a basis for selecting an architect. Chance candidates could not possibly be fully acquainted with the detailed needs of the school and most of their sketches would be worthless. If the school officials cannot develop enough confidence in an architect after studying him as well as his completed jobs, without asking for plans and sketches as a basis for employing him, they are not in a position to employ him and should look elsewhere.

When the preliminary sketches had been corrected to the point that the requirements of the school were approximately met in an economical form, the architect was asked to proceed to make drawings from which photoengravings could be made. These cuts, with the architect's description and the superintendent's discussion of the plans, were used during the campaign.

From the time that the architect was employed there was a constant need for legal advice. In Ohio the board of education has the privilege of using the county prosecutor, or may employ a local attorney. No school board need pay for an architect's services before the date of an election, nor should it be necessary to spend money for an attorney unless the board especially wants or needs one. The county prosecutor made certain that all meetings were held and resolutions adopted in ample time in conformity with law. It is extremely wise to have all of this machinery ready and set in motion six months previous to the election.

In the meantime, the superintendent kept his ear to the ground. He continually sounded out the attitudes of citizens to a proposal such as he expected to present to them. The teaching staff was acquainted with the details of the proposal as it was to be submitted. Their duty was made clear and general principles for their work were discussed. The work which they could do had i's limits but was extremely valuable. They, first of all, tried to make the pupils aware of the needs of the school. Their work was somewhat incidental and not apparent. Some teachers must be watched or their efforts will become negative rather than positive due to overabundant enthusiasm.

During the entire year previous to the bond issue, the school must be extremely careful in all its work. Debatable issues should not arise and any controversy, if unavoidable, ought to be silenced as soon as possible. Friction within or without the school will serve as a splendid foundation for arguments of the opposition. The good feeling of the community must be continually cultivated.

III. The Campaign

The intensive campaign was begun about a month previous to the election. The duration of this campaign will depend upon the type of people in the community, the facilities available for publicity, and the general economic conditions prevalent at the time. In a time of financial distress, such as has recently been experienced, a long campaign was deemed necessary to prove to the public the desirability of erecting desired buildings in spite of general conditions. In communities where the newspaper is issued less frequently than daily and cannot give much space to publicity such as is desired, the long period of time will be necessary to get the details of the proposal before the public.

The administrator of the schools is the logical person to initiate the campaign. Indeed there is no one else who is fully informed concerning school needs and certainly there is no one who can be as vitally concerned and interested as he. It is true, of course, that his apparent leadership will prejudice some against the proposal at the outset. However, his opinion should have some influence with others, which could not be gained should anyone else promote the campaign. His influence, if the campaign is to be effective, will gradually disappear as the day of election nears and should finally be replaced by other individuals and organizations. When the day of election approaches, the whole program ought to be definitely in the hands of a group of citizens not connected officially with the schools. This will naturally occur if the preliminary preparation has been wise and effective.

Publicity for the campaign was gained through a number of media. The most effective and most easily used was, of course, the newspaper. The editor was glad to co-operate by throwing open his columns to explanations both for the proposal and also sentiment against it. Controversial matters, the editor realized, means increased circulation. A long time ahead, the administrator attempted to focus the attention of the public upon the schools by some general articles upon the values of education, the money spent upon education, and the trend toward the improvement in method as well as improvement in equipment provided. An open forum was conducted and letters and comment from both sides concerning the proposed issue were printed. Arguments against the proposal were met and counteracted with concrete data prepared by the superintendent. Toward the end of the campaign, several important friends of the proposed issue wrote favorable letters to counteract unfavorable ones which appeared at the last moment. If the editor can be prevailed upon to do it, he may assist the cause at the last by a strong editorial or two committing himself to the bond issue. In all of this newspaper publicity, care was taken to enter into no idle arguments. An attempt was made to meet every issue with sound information, figures, and other valid data. "Spike" all arguments immediately and completely, and they will not persist.

Early in the fall, about two months before election, a meeting was held with all the pastors in the town. At this meeting, the need for the proposed bond issue as well as the financial situation, was explained in detail. These men readily sensed the vital needs of the community and asked to be supplied with facts. A definite plan of assistance was adopted by them. Their help was not to be too obvious. Like superintendents and principals, they are usually not large taxpayers, and too-insistent efforts on their part would have laid them open to criticism from the opposition. Their efforts, however, may easily be directed toward the issue, and much good may be accomplished by general approval of the idea of good schools and good school buildings. In this community, a pastor arranged a dramatization, including men prominent in various fields of endeavor, on "The Value of a Boy."

At the beginning of the fall term, the proposed plan was explained in detail to the pupils. When the campaign was begun, a little time was taken in each class, with pupils of the sixth grade and higher, to explain the increase in taxes which would be caused by the proposed bond issue. The children were taught how to figure the amount of taxes for any given property evaluation. They were given the task of convincing their parents, friends, and neighbors. It was surprising how much good was done by some of these pupils who were especially enthusiastic and wide-awake. The writer knows of one sophomore boy who secured about eleven votes from people who were set against the bond issue. He simply sat down with them and figured until he showed them that they would be able to exist as easily with the new school building as they had been without it. Then he showed them concretely what was being wasted by the inefficiency due to crowded conditions and the dangers to which the pupils were exposed.

A short time before the election, a straw vote was taken among the pupils whose parents, brothers, and sisters were voters in the school district. From this, a fairly reliable idea was obtained as to the feeling of the town. This vote was made by secret ballot, and the results showed which groups needed to be convinced: whether the parents needed to be convinced, whether the women or men as a class needed more explanations, and in general whether the pupils might accomplish more, and whether the superintendent must push the proposal.

Parades and buttons with "Vote Yes" or "My Parents Will Vote Yes" were considered of doubtful value in this community. The parade takes too much time, there are dangers of health or accident, and it is not fair to the pupils whose parents are set against the bond issue to ask them to enter into a demonstration for it. The buttons are likely to create more criticism than they will do good. It does not seem fair to call attention to one pupil who may not be wearing a button because his parents are honestly opposed to an issue.

Window cards emblazoning the bond issue, the date, and "Vote Yes" were made by the pupils and distributed among the business houses and displayed in any other prominent places. Each of the signs was different and so placed as to tell a story of the situation. It seemed good psychology to place on them some expression or phrase not easily connected with the bond issue but which, when studied, would bear upon some phase of it. In constructing them, two objects were kept in mind: to attract and hold attention, and to help integrate the "Vote Yes" idea.

A week or two previous to the election some large street signs were displayed at busy corners. These were made by pupils from sign cloth and painted with carriage paint. In these signs there was a similarity of "Vote Yes" and

one or two other expressions. The wording provided a slogan to be used in the talk of the town.

Windshield stickers of bright paper with "Vote Yes on the School Bond Issue" printed on them, were distributed by pupils, but placed only on those cars whose owners gave permission. They were used to advantage, likewise on the doors of business houses, whose owners favored the bond issue.

Public mass meetings are sometimes desirable. At these meetings everyone concerned will have a chance to hear at first hand, accurate data and sound arguments for the proposal. Outstanding arguments against the issue may be met and exploded. If the State Department of Education is making some of the requirements, a speaker from this Department may be secured to present the Department's stand. At any rate some out-of-town speaker of note should be had for the evening, and his general talk should be followed by a concrete summary of the situation by the superintendent. It seems of doubtful value to attempt any discussion from the floor. Usually more harm than good results if the meeting is thrown open to the public for discussion. The opposition will, no doubt, include some who are good speakers and if they are allowed, they will take delight in discrediting the entire movement. Where the opposition is very pronounced, but in the minority, the mass meeting is usually a mistake. Harm rather than good will result. For that reason in this instance the mass meeting was not used.

The best form of discussion was obtained by meeting with all the small organizations, such as clubs, lodges, the American Legion, etc. These groups almost always exhibit a distinct interest in projects for civic betterment. It was possible to explain all details to them fully because of the smaller numbers. Vague points were cleared up and arguments advanced to meet all criticism. No feeling of animosity was engendered by this method. Each person had a chance to understand the other's position and valid arguments received just consideration. From these groups, one or two of the more enthusiastic persons volunteered to back the movement and take over the final part of the campaign.

A few days previous to the election, the superintendent had a pamphlet printed listing all the needs of the school, with a word explaining the reason for each necessity, a perspective and floor plans for the proposed building, a description of the plans, and a financial explanation of the cost and method of payment. All of these data were on file from the survey. Each family received one of these pamphlets, so that every voter had a chance of informing himself before voting.

On the afternoon previous to the election and on the morning of election day, volunteer pupils were given the opportunity of calling all families over the telephone. Each pupil was cautioned to say the same thing — just a courteous reminder of the fact that election day had come and that it was hoped the people would vote for the school-bond issue. The pupils were cautioned to speak loudly and distinctly and to engage in no arguments. This telephoning helps to get the voters to the polls. Usually where a bond issue fails it is due either to lack of publicity or the failure to get out the vote.

On election day, interest might be stimulated and the desired voting increased by a number of devices. It is difficult to station persons, with publicity material, near the polls to solicit all voters as they enter the polling places. Even if they could approach the polls, it is doubtful whether the voters would take time to read the literature. Their opinions are already formed. Parades are too great a loss of time and are of doubtful value. One "stunt" which seems, however, to be of value, is to make a record or two containing a polite, concise talk in favor of the bond issue. These records may be made at reasonable cost. Merchants handling phonographs and radios will be glad to furnish a phonographic turntable, amplifier, and radio through which the records may be broadcast upon the street. People will listen on election day although they may be too busy to read.

In our community the entire campaign was carried on in a positive manner. Nothing is gained and much may be lost by entering into debates or arguments. Nothing was done to discredit the critics no matter how bitterly they were opposing what was known to be a definite need in the school system. Accurate facts, figures, comparisons, and sound arguments will explode any opposition, if they are given at the proper time and in a desire to illuminate the situation. Opinions are worth nothing.

Adapting the New High-School Building to the New *School Program*[1]

Homer W. Anderson[2]

In one of our large middle-western cities about twenty years ago, an architect was given a contract to prepare the plans and specifications for a high-school building which would accommodate 750 pupils. He went to the superintendent of schools to secure from him the requirements of the building. The superintendent replied that he did not know what should go into the building but that Mr. A., head of the English Department at Central High School, could furnish him all the data since he was to become the principal of the school. The architect proceeded immediately to Mr. A., who said: "Put in some classrooms and six large study halls. That is all I know about it. If you want to know what should go into the physics department, go down and see Mr. B., who will be the head of that department, and Mr. C., head of the chemistry department. Miss D., who will take charge of the art department, will tell you what she wants." The architect saw these people, and the building was planned and erected.

A few years later it was found that this building contained art accommodations adequate for the original capacity as planned, that there were classrooms enough for at least 900, study halls for at least 2,000, chemistry laboratories adequate for a school of 2,400, and a physics department large enough to accommodate a school of 6,000. This building plainly lacked any reasonable relationship to the school program, and in terms of the capacity ordered was greatly overbuilt. However, in terms of school growth it was not overbuilt. In less than six years after completion the building was accommodating 1,500 pupils, after converting many expensive facilities into classrooms. We have gone a long way in the past twenty years in planning school buildings on a more less scientific basis, and I doubt whether today the total lack of knowledge concerning school planning as was evident in this building of twenty years ago could be found anywhere in the United States.

Trends in High-School Programs

I should like to call attention to a number of trends which are quite evident in high-school programs today. These must be very carefully taken into consideration in planning the modern high school in order that they may be adequately taken care of. They all represent, I think, persistent demands on the part of the people for certain types of education, and certain changes in the conception of educators toward some phases of the school program, notably the first one listed below. These trends are as follows:

1. A growth in the conception of the use, and consequently the size of the library unit. Very few high schools today have an adequate library. Usually the room is too small to accommodate the students that should be served, and very frequently not enough space has been provided for books. It seems that the trend is toward a study center in the building, depending somewhat upon the school program, but in the senior high school it is quite necessary to provide the student with opportunities for independent work rather than continuous supervised study. This would require in the larger schools, a large study unit and close co-ordination between the library proper and other units of study. Therefore, much greater care must be taken in trying to adjust the library and study unit to the needs of the modern school program.

2. Since the war, there has been a tremendous growth in the demand for physical and health education. We see, therefore, in cities which have recognized this trend, quite adequate facilities for the physical and health training of both boys and girls.

3. There has also been a decided trend toward the selection of commercial courses, particularly typewriting and salesmanship. This trend, so far as my experience is concerned, has not been lessened during the depression — rather it has been growing.

4. A significant tendency has been the growing popularity of all forms of music. Therefore, in planning to meet the modern high-school program, adequate provision must be made for bands, orchestras, and choruses.

5. The auditorium has come in for a good deal of study on the part of educators. There is probably a growing conception concerning the possibilities of an auditorium as a factor in the school organization. Auditoriums should, therefore, be planned with this definitely in mind, that they are to be frequently used by large groups in the school, not necessarily the entire school, but by large enough groups so that the auditorium should be planned for this definite daily use. This would affect many of the facilities which go into the auditorium, such as acoustics, lighting, and accessibility from all parts of the building.

6. Since the war there has been a tremendous growth in the total high-school enrollment. The problem which we face now is whether or not this tendency will continue. This is a crucial question because there may be a radical change in the unprecedented growth high schools have made and which has meant that practically every high-minded building was filled before the mortar was dry. Whether this condition will

[1]Presented at the twenty-fourth annual convention of the National Association of Public-School Business Officials, Minneapolis, Minn., October, 1935.

[2]Superintendent of Schools, Omaha, Nebraska.

be true in the future is a question which every community facing the erection of a high-school building must answer. If the community is growing and expanding rapidly, the chances are that there will be little danger of the immediate overbuilding of its high-school plant. However, careful analysis must be made of the elementary-school enrollment. If the elementary-school enrollment is decreasing, then the community ultimately faces a decrease in the high-school enrollment. It so happens that elementary-school enrollment in most of our large cities has been going down, or has reached a plateau. Sooner or later this will be reflected in the high-school enrollment. [In my own city, Omaha, the 10- to 14-year-age groups are the largest. Therefore, we can expect high-school growth for the next four or five years, and a small decrease thereafter.] It is, therefore, important to guard against overbuilding the high-school plant at the present time. There is danger that unless this point is studied very carefully there will be more school building than the program warrants at an early date.

Number and Size of Rooms

A fundamental problem which, I think, is now thoroughly understood and which I will not discuss at any length, is that of the number and size of rooms. School people and architects know quite well the methods employed in computing the number of rooms required to house a high-school program. Suffice it here to say that the number of rooms must be based on the number of pupils who will probably be enrolled in each subject. This is now determined on the basis of present subject enrollments with allowances for trends in the program as noted above, and for changes in the size of classes and the difficulties of program making which make it impossible to fill at all times every seat in every room in the high-school building. A number of valid methods are in use which reach the same conclusions as to the number of rooms required to house the high-school program. The problem is discussed rather fully in Packer's *Housing High-School Programs*.[3]

Probably a more difficult problem to solve is the question of the size of rooms to economically satisfy the high-school program. It is important that there be a proper balance between the cost of the building and the school program. Certainly no community is wealthy enough to build extravagantly, and yet in many communities more money has been wasted in oversized rooms than on anything else. I have found when consulting teachers in the special subjects that they have usually specified rooms much larger than necessary. Not only were they so large that they were expensive to build and to operate, but they required an undue exertion on the part of the teachers themselves. In other words, these rooms are often too large for efficient instruction. There is only one way that I know of to answer the question of how large the rooms shall be, and that is in terms of the number of pupils to be housed in each room, and the type of equipment which is to be used. A chemistry laboratory to accommodate 24 pupils would necessarily be much smaller than one to accommodate 28 or 32. Also, if the old-type chemistry desks or workbenches which accommodated eight pupils were used, the size of the room would be different than it would if the airplane type of benches were used. Great care should be taken that floor plans of laboratories or other special rooms are laid out with as economical use of space as possible. Rooms should not be crowded, but waste space should not be permitted. Every community must decide for itself the number of pupils it wants to place in each class, and the type of equipment it wants to use, because upon these two factors will depend the size of each room in the building. It is, therefore, impossible to lay down any set and fixed standard as to the right size of rooms, without first knowing the number of pupils to be accommodated, and the type of equipment which is to be used in the room.

[3]Packer, P. C., *Housing High-School Programs*, Teachers College Contributions, Columbia University, New York City, also Anderson, H. W., *A Method of Determining Junior High School Room Requirements*, University of Iowa, Iowa City, Iowa.

Principles of Organizing High-School Buildings

Another pertinent question is this: How shall the high-school building be put together to best meet the needs of the high-school program? This is rather a difficult question, but I have found that there are four principles which govern quite definitely the organization of high-school building. These four principles are definitely related to the high-school program and its economical and efficient administration.

The first of the principles, and a most important one, is what I call *the principle of accessibility*. It follows the general idea in the application to the high-school program, of placing in the core of the building the rooms which are used most frequently by the greatest number of pupils. In applying this to the high-school organization, we immediately realize that the classroom unit should form the core of the building, because in most high schools the regular classrooms must accommodate from 50 to 60 per cent of the entire school enrollment. Then the rooms which are used by the fewest number of students would be placed in the outlying parts of the building. Placing the classrooms together as a core part of the building has economical as well as educational features. It means that this unit can be built wholly of one type of construction since classrooms would all be the same width and practically the same length. There are also other parts of the building which should be located according to the principle of accessibility. Libraries, for instance, which may be used by students from many parts of the building at almost any time, should be centrally located in the building so as to be easily accessible to any part of the building. The office of the principal should likewise be located in the center of the building. It is also my own personal feeling that the auditorium should be used frequently by large assemblies of the high-school student body. I do not believe that we can afford to build large and expensive auditoriums and have them stand idle most of the time. Therefore, the auditorium should be so placed that it is easily accessible from all sides and that it can be entered quickly from all parts of the building and be emptied back into all parts of the building with equal speed. I believe that this is a more important factor in the location of the auditorium than its location with reference to its accessibility to the public after school hours, although I would not neglect this feature and would provide an easy access to the auditorium for outside groups.

Another important principle which I follow, and which I have noticed many architects follow, is the one which we call *orientation*. This deals with the location of art rooms for north light, science laboratories for south light, location of the gymnasium adjoining the playground and athletic field, and so on. This is such a simple principle that it needs no further discussion.

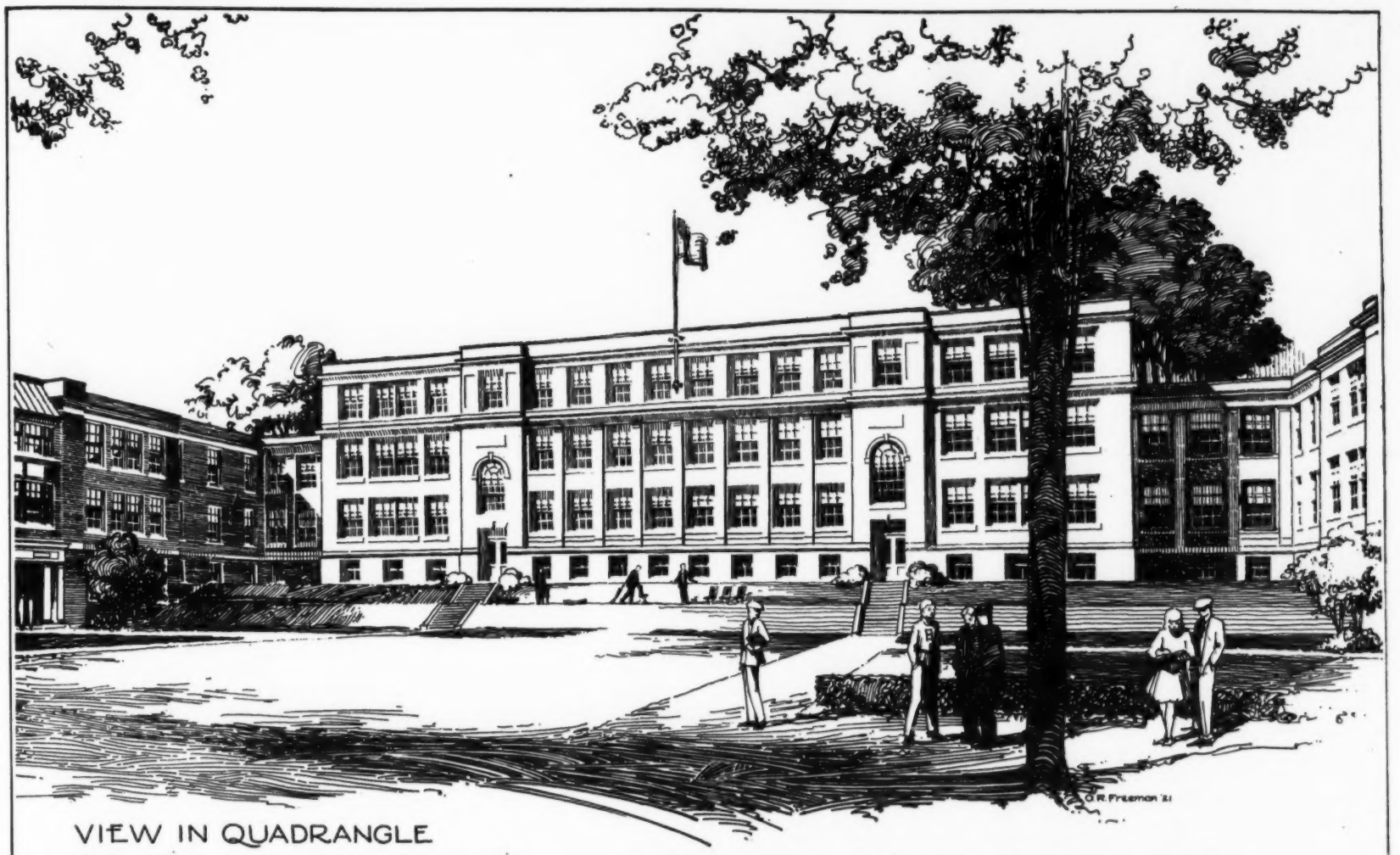
A third principle in the organization of a school building is that of *association*. By this is meant placing together, so far as possible, all rooms having similar activities. Thus I would organize a high school so that all history rooms and social-studies rooms are together because these are usually placed under one department head, and for convenience of administration and co-ordination it is advisable that rooms for like subjects be placed close together. In the same way, all science rooms should be in the same part of the building. In the planning of the high schools with which I have had anything to do, we have placed the biological science department on the first floor, the physics laboratory on the second, and the chemistry department on the third. Here again the science departments should probably be under one head and by placing them as we have toward the south with the one laboratory above the other we have consolidated the plumbing and consequently cut down expenses in this respect. Home-economics laboratories, industrial-arts shops, and commercial departments should each be concentrated in their own group within the building.

The fourth principle of organization is one which is called *noninterference*. Some activities are so noisy that they interfere with adjoining activities; for example, music, physical education, and certain types of shopwork. We should, therefore, in planning a high-school building, try to place these so that they interfere as little as possible with activities in adjoining parts of the building. By careful planning the music department can function without seriously disturbing any other departments. There are other types of interference. We have found that odors from the lunchrooms sometimes interfere by getting into the building and stimulating at the wrong time the appetites of healthy young boys and girls. We, therefore, like to place the cafeterias either at an extreme end of the building or at the top so as to keep the odors out of the other parts of the building as much as possible. Fumes from chemistry are sometimes disagreeable, and I have been in schools where they have permeated large portions of the building. This can be avoided, I think, by proper ventilation and also by proper placement.

By following these principles, after having determined the number and size of rooms, it seems that the question of organizing the school building to meet the high-school program will be fairly well taken care of. The evidence shows that many architects and educators have these principles in mind in general. My purpose here is to make them more specific. I often see in our journals, floor plans of high-school buildings which follow these principles of organization quite closely. From these plans I draw the conclusion that, so far as these principles are concerned, they are quite well adjusted to the high-school program. Others follow some of the principles and violate others, and the conclusion is quite naturally that as far as the organization of the building is concerned, it lacks something in its adaptation to the school program.

I have said nothing about *flexibility* which makes possible future alterations to better adapt the building to changes in the school program, because of the almost universal application of this principle. Buildings must still be planned so that they are easily altered and expanded.

In the planning of high-school buildings which fit the school program we have gone a long ways in twenty years. We know fairly well how to take the measurements of the high-school program and convert them into well-fitting buildings. We have standardized methods, techniques, and details fairly well, but I am happy to say we have not standardized completely school programs nor as a consequence school buildings. Each building is and must remain a particular design to house a particular program. Each is a problem all by itself and must be so solved. There is no general plan which fits all, and there never should be such a plan. School programs must continue to change and improve as new knowledges and new conditions come into the picture. Buildings must be planned to serve these improving and changing conditions. Fine co-operation of architects, school officials, and teachers has brought about outstanding progress in this respect during the past decade. The continuance of this intelligent co-operative study will see many improvements in the next few years when school-building operations will be resumed.



Two Interesting High-School *Enlargements*

The Brookline and Waltham, Massachusetts, High Schools

Messrs. Kilham, Hopkins & Greeley, Architects

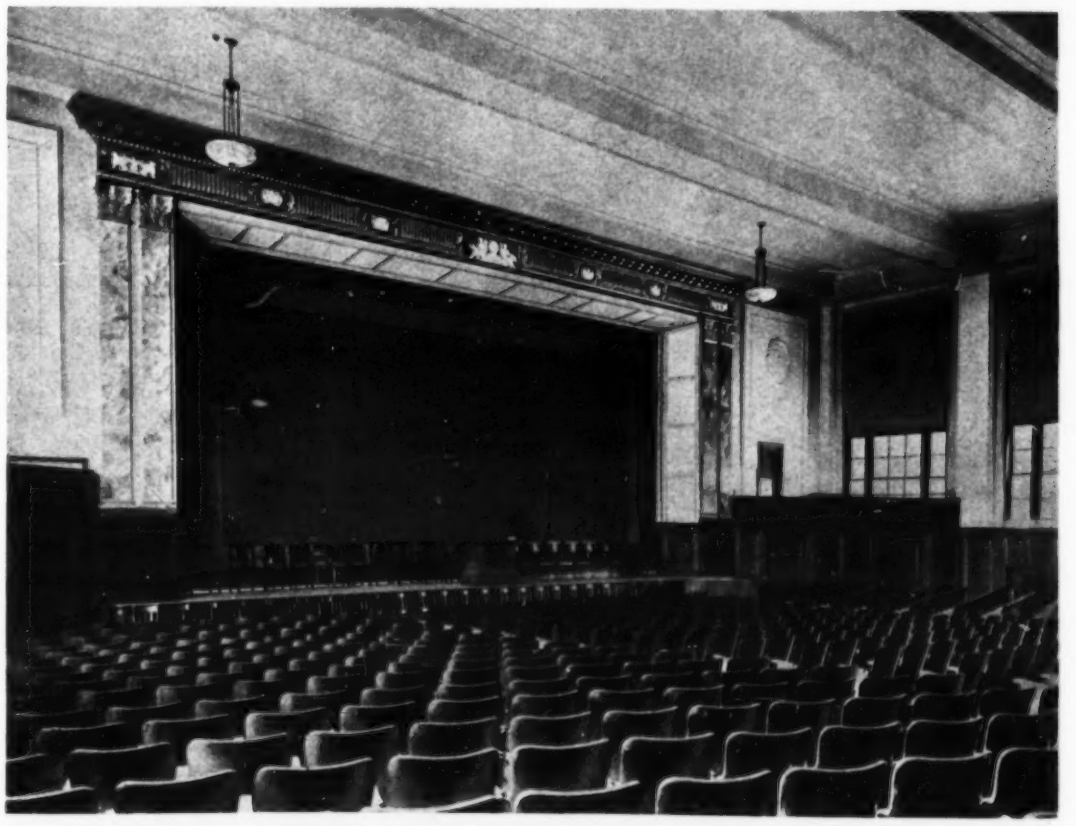
The enlargement of an existing high-school building frequently involves problems of planning and engineering that makes the original layout of an entire new building appear to be relatively easy and simple. Such has been the case in the enlargement of the high-school buildings in the cities of Brookline and Waltham, Massachusetts. In each community the existing building was structurally sound and educationally suited to the enlarged program, but inadequate from the standpoint of size. In each case the exterior design was somewhat outmoded, and there were important reasons for making changes in the materials of construction. Both buildings involve considerable study from the standpoint of securing maximum building accommodations at a minimum outlay.

The Brookline High School

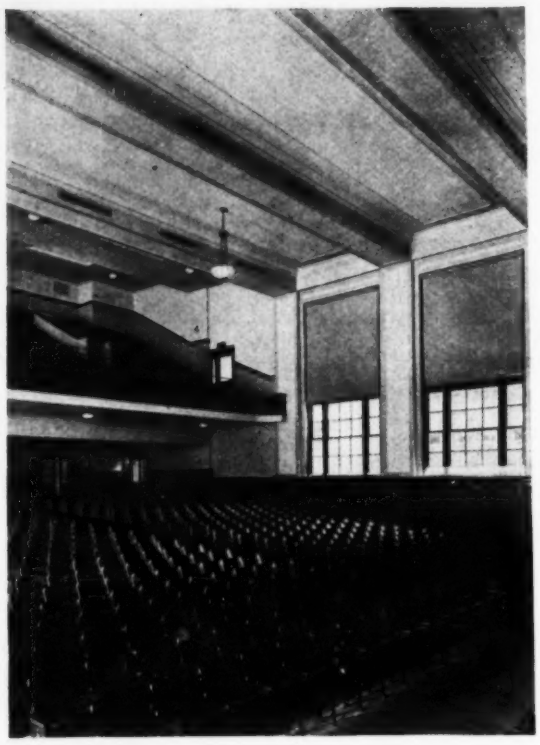
The original portion of the existing Brookline High School was built during the early nineties. It comprised a basement and three stories, very thoroughly built in second-class construction, with a steep slated roof and a high brick tower. By 1920 the building had become seriously overcrowded. Its location was central and convenient; a large public playground was situated across the street, and also fronting on this playground were a large municipal gymnasium and an inclosed swimming pool, the latter one of the first municipal pools in the country.

These fixed advantages were deemed sufficient cause for retaining the present building and location. Consequently, additional land in the rear, backing against a high hill, was secured, and plans were drawn which would provide a complete building to accommodate a total of 2,250 pupils. The construction of the first unit was completed in 1920–21, and the second unit was erected in 1932.

After much study to determine the best method of utilizing the new land, it was concluded to retain the original building for reasons of



VIEW OF AUDITORIUM LOOKING TOWARD STAGE. BROOKLINE HIGH SCHOOL, BROOKLINE, MASSACHUSETTS
Kilham, Hopkins & Greeley, Architects, Boston, Massachusetts.



THE AUDITORIUM LOOKING TOWARD THE BALCONY, BROOKLINE HIGH SCHOOL, BROOKLINE, MASSACHUSETTS

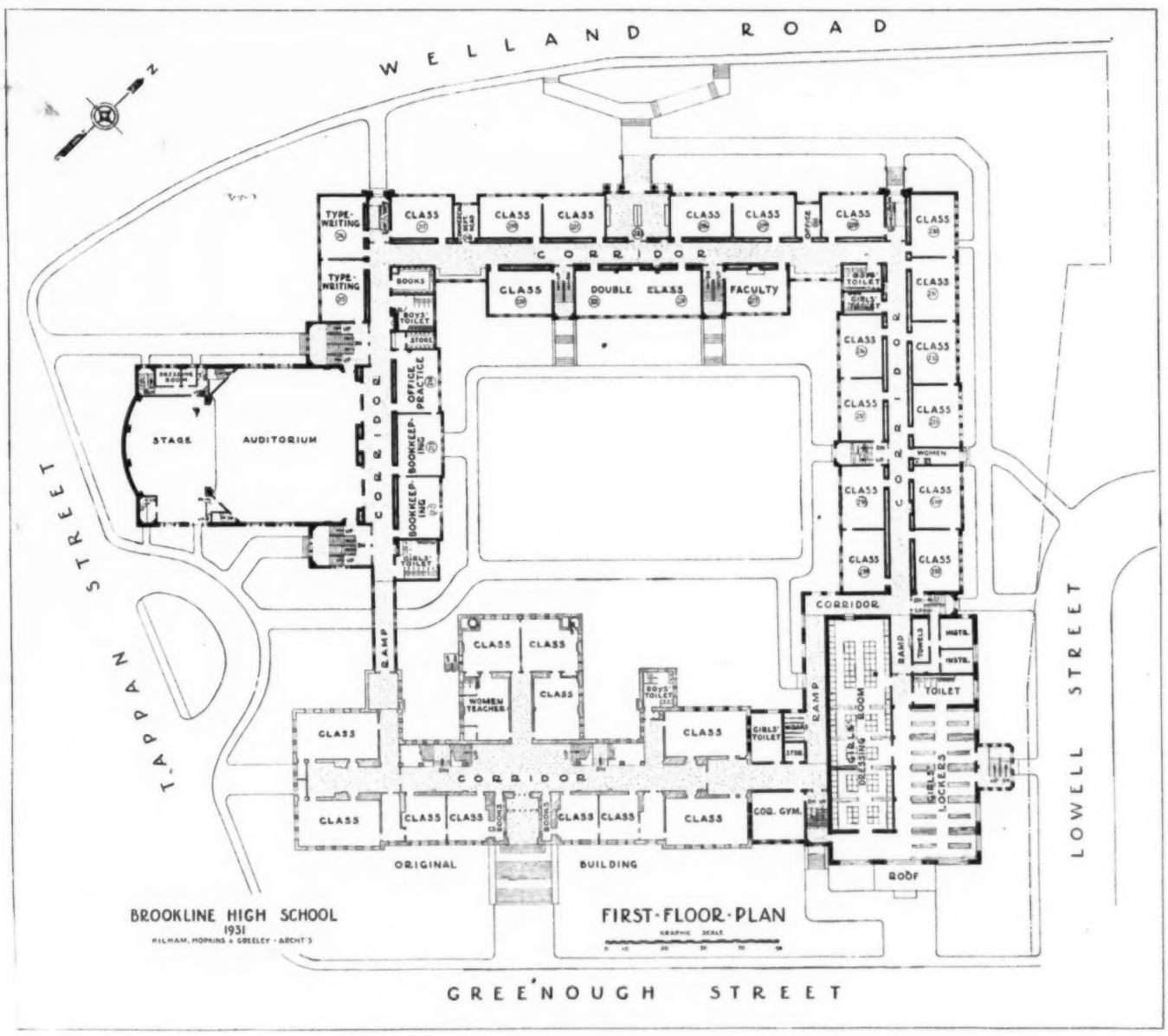
EXTERIOR VIEW OF UNIT NO. 2, BROOKLINE HIGH SCHOOL, BROOKLINE, MASSACHUSETTS
Kilham, Hopkins & Greeley, Architects, Boston, Massachusetts.

economy and to build the new portions in the form of a quadrangle around the outer perimeter of the lot. The resulting building would surround an interior court about 150 by 200 feet in size. The architecture of the original building was outmoded in many ways, and therefore a simple classical type was adopted for the new portions. It is hoped that sometime circumstances will permit the removal of the original building and the completion of the design.

The new plans of 1920 provided an auditorium, seating 1,200, with a truly operatic stage, 48 feet deep by 64 feet wide, provided with grid and multiple dressing rooms. There are also a cafeteria, locker rooms, an art department of three rooms, a commercial department of five rooms, a large faculty room, and 28 classrooms. For the time being, it was decided that the municipal gymnasium should be continued in use and that the erection of a separate gymnasium for the high school should be deferred.

The 1920 unit having become overcrowded in 1932, a step was taken toward completing the original quadrangle by the addition of the north wing. The latter was planned to comprise 22 classrooms and 8 rooms for the science department. At this time, the inconvenience of crossing the street to the municipal gymnasium had become so great that sketch plans were drawn for a physical-education wing which would complete the quadrangle. It was planned to erect a full-sized modern gymnasium for both boys and girls, rooms for posture instruction, and all the usual appurtenances of a modern gymnasium. This final building is still contemplated but has not yet been authorized.

The auditorium of the original building, a lofty and splendidly lighted room, about 60 by 60 feet, has been transformed into a remarkably fine library, the administration of which has



FIRST FLOOR PLAN, BROOKLINE HIGH SCHOOL, BROOKLINE, MASSACHUSETTS
Kilham, Hopkins & Greeley, Architects, Boston, Massachusetts.

GENERAL EXTERIOR VIEW, BROOKLINE HIGH SCHOOL, BROOKLINE, MASSACHUSETTS
Kilham, Hopkins & Greeley, Architects, Boston, Massachusetts.

ART DEPARTMENT, BROOKLINE HIGH SCHOOL, BROOKLINE, MASSACHUSETTS

BROOKLINE HIGH SCHOOL, BROOKLINE, MASSACHUSETTS
The photograph shows the wing outside the quadrangle.

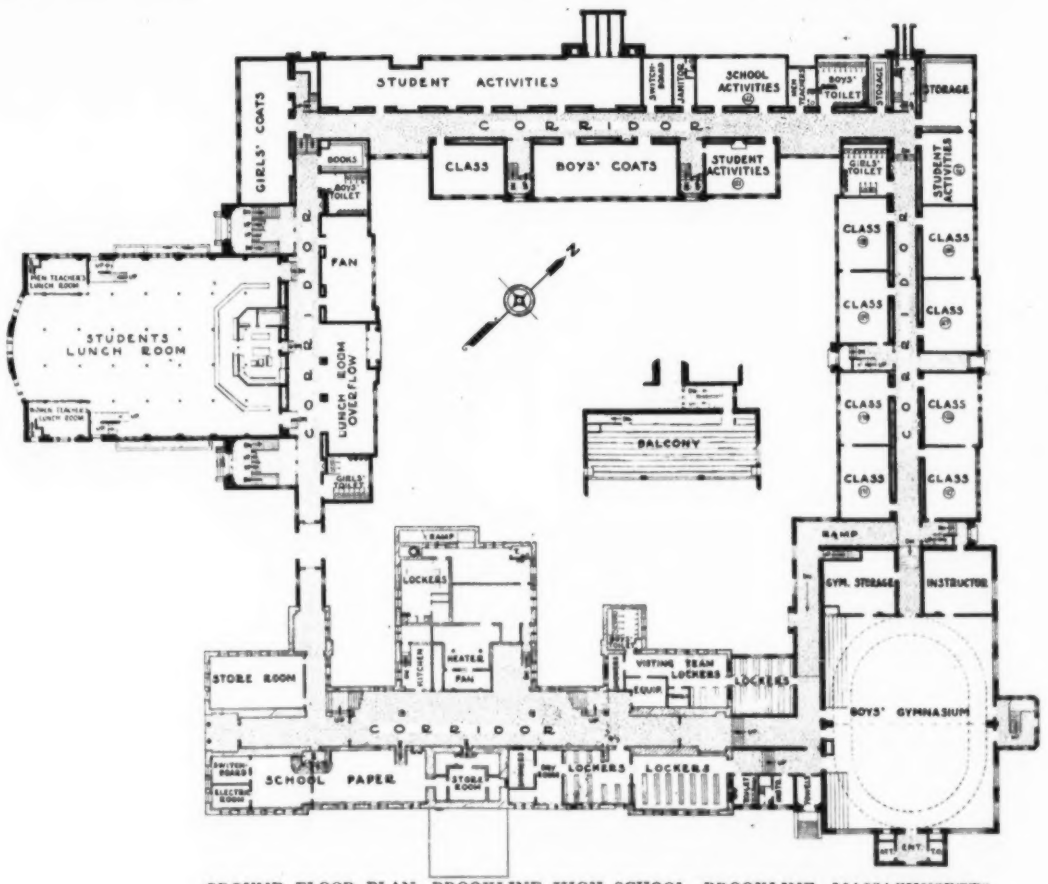
been taken over by the Brookline Public Library. As a further improvement, the entire domestic-science department, located in the original building, has been modernized.

Tentative studies have been made more recently for developing the quadrangle into an out-of-door auditorium or arena where summer functions, pageants, etc., could be given.

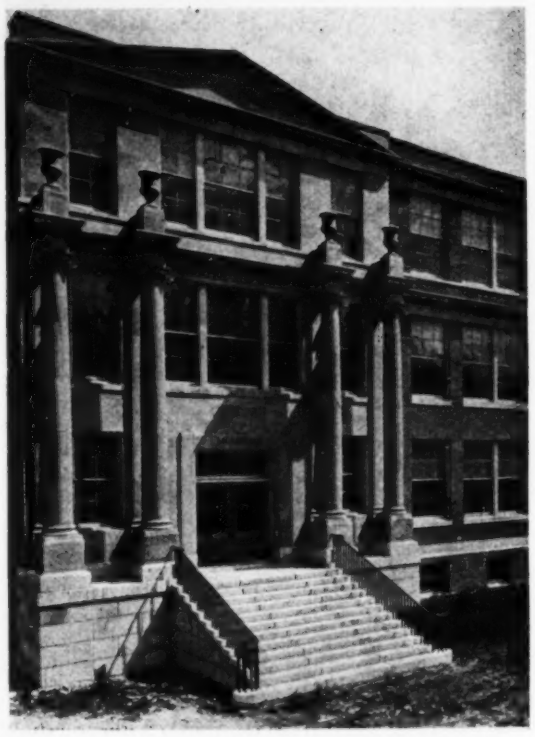
The result of these operations has been to give Brookline a modern high-school building housing about 2,500 pupils. The enlargements have been made at a cost of about $1,000,000, but, as is so often the case, the entire plant is already filled almost to overflowing. The total cost of the plant, including the already amortized expenditure for the original building, has amounted to $400 per pupil. Thus the utilization of the really fine old building not only has saved the taxpayers a large sum of money, but has preserved a building filled with the memories of 40 years of useful service to thousands of young people.

The Waltham High-School Additions

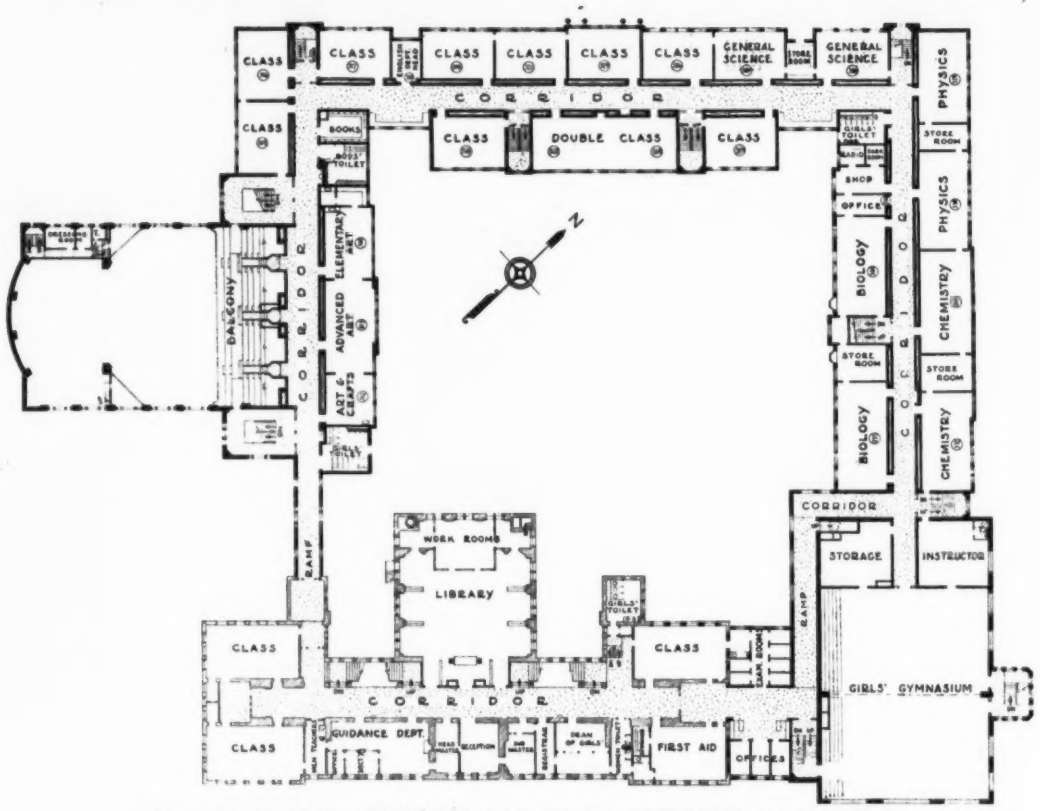
During an entire decade the school committee of Waltham has planned and struggled to secure an educationally adequate building for its senior high school. There has been a constant shortage of space, and both teachers and pupils have worked at a disadvantage because of the excessive enrollments accommodated. From year to year various schemes for solving the problem have been presented. These have varied in cost from $600,000 to $1,000,000, and all have



GROUND FLOOR PLAN, BROOKLINE HIGH SCHOOL, BROOKLINE, MASSACHUSETTS
Kilham, Hopkins & Greeley, Architects, Boston, Massachusetts.



DETAILS OF MAIN ENTRANCE OF 1932 ADDITION, BROOKLINE HIGH SCHOOL, BROOKLINE, MASSACHUSETTS



SECOND FLOOR PLAN, BROOKLINE HIGH SCHOOL, BROOKLINE, MASSACHUSETTS
Kilham, Hopkins & Greeley, Architects, Boston, Massachusetts.

been killed either in council or by a direct referendum vote of the people. The city is one which cannot afford to be extravagant in its appropriations but must make the best possible use of every dollar of tax money.

The old Waltham High School building has been in use as a high school for more than a generation. It is well built, but in some respects antiquated and far too small for the present enrollment. To complicate the problem further, there is little space on the site for expansion. In 1933, however, Kilham, Hopkins and Greeley worked out a proposal for the erection of classroom wings and a double gymnasium which would provide ample room for the enlarged enrollment and for the newer activities carried on in the school. The plans incorporated an entirely new heating plant of economical design, the essential renovations of various portions of the old building, and carefully considered fire protection. The plan was accepted and was made practicable by the purchase of a small additional parcel of land.

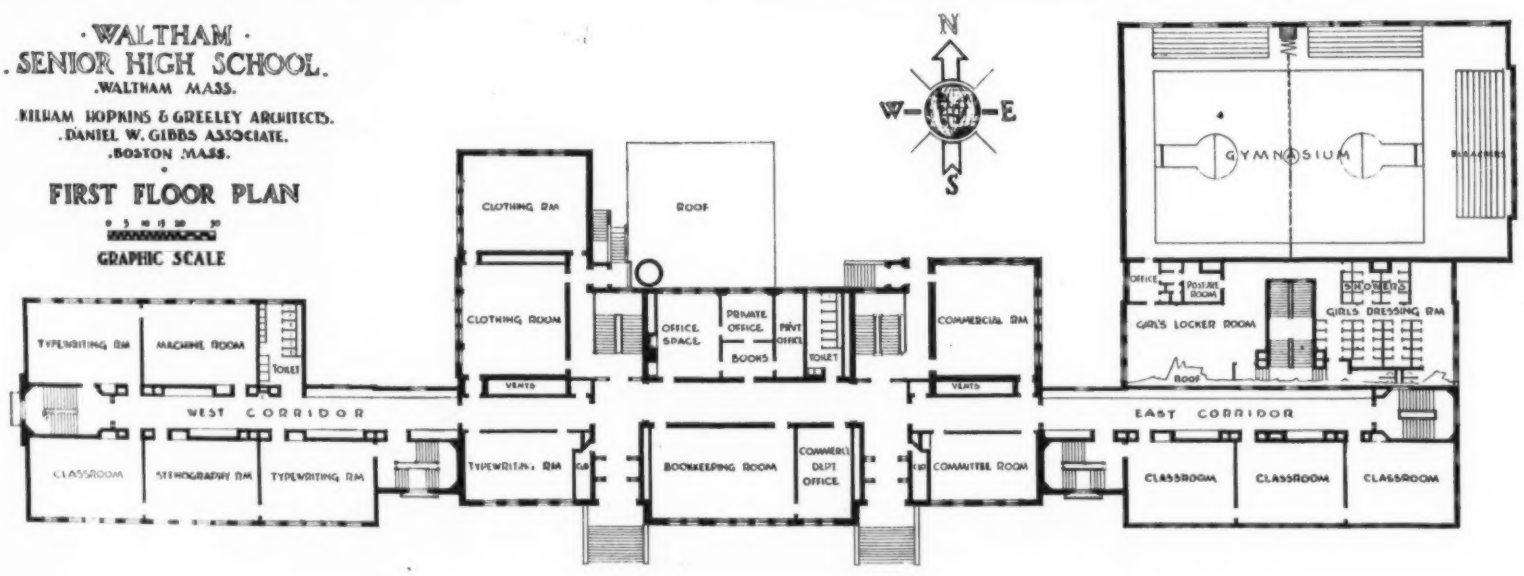
The construction of the additions and the remodeling were undertaken during the summer and fall of 1935, and at the time of writing were approaching completion. The total cost of the wings, of the new boiler plant, and of the boiler-room renovations amounted to $266,000. An appropriation of $75,000 in addition to the foregoing, has been made for the erection of a gymnasium which is to measure 65 by 105 feet and to include showers, toilets, and lockers for a total of 1,200 pupils. Upon completion of the gymnasium additions, the total cost of the remodeling and enlargements will have been about $340,000.

The solution of the Waltham High School enlargement problem affords an interesting comparison with projected schemes for new layouts. It indicates the value of very careful studies of existing buildings and sites, of possible enlargements to fit increased enrollments and enriched educational programs. It suggests that existing facilities should not be abandoned so readily in favor of entirely new sites and new buildings, at least until the existing possibilities have been exhausted.

The present accommodations in Waltham, now included in the enlarged high-school plant, include the following:

(Concluded on Page 74)

GENERAL VIEW, WALTHAM HIGH SCHOOL, WALTHAM, MASSACHUSETTS
Kilham, Hopkins & Greeley, Architects, Boston, Massachusetts.



School Floors and *Floor Coverings*

Geo. M. Hopkinson[1]

The kind of material that should be used for floors and floor coverings in school buildings is one of the most vital problems which confronts us in connection with the selection of proper and suitable materials for schoolhouse construction.

It is the floor that receives 90 per cent of the use and abuse to which a room is subjected. It is the floor on which large sums of money have to be expended each year for cleaning and maintenance. It is the floor in the entrance hall of a building that creates the "Atmosphere" and gives the sense impression as to what we might expect to find within.

It is the floor which in a dozen ways may be the cause of grief and dissatisfaction or on the contrary may be the source of greatest satisfaction in the occupation and use of the building.

We find country-wide that nearly all classrooms have wood floors, the reason for this, of course, is the fact that previous to a few years ago no other suitable material was known and the habit, like "Topsy just grew," has continued to grow regardless of the fact that many other materials are available which have proved their worth.

Of the several kinds of materials now on the market suitable for school floors we find in many instances three or four different kinds suitable for the same location from which it is possible to make a selection.

What kind of material to use for classroom floors perhaps forms one of the most important subdivisions of our subject, the floors of classrooms being the major area covered in the building. Of the five or more kinds of possible materials, namely, asphalt tile, linoleum, cork, rubber tile and wood, we find that each have certain characteristics in common, they are more or less resilient, have good wearing qualities, and are suitable in various degrees for economical cleaning and maintenance. With the exception of wood, they have certain values which assist the acoustical properties of the room and, in addition, they possess good qualities from the point of sanitation and are a step forward as fire-retarding agents.

Another location where the kind of floor material to be used is of great importance is in the corridors. The hard wear due to tracking dirt and of scuffling feet makes it necessary to provide material that will stand a great deal of abuse. The seven types of possible materials, namely, asphalt tile, linoleum, cork, rubber tile, burned tile, terrazzo, and composition, that might be given consideration, have certain common characteristics but each vary in some particular respect. Some have particularly good qualities in certain directions and others more favorable in some other direction. Burned tiles, terrazzo, and composition each possess a hard surface but in varying degrees of hardness; they are not resilient, of course, but this is not important when used in corridors and considered only from this angle. From the point of view, however, of noise deadening, the softer types of materials deaden noise more effectively, and this is somewhat of an important factor in corridors. The burned tile presents the hardest and most impervious surface. The asphalt tile, linoleum, cork, and rubber tile possess the greatest noise-deadening qualities of the seven types of materials mentioned above.

In all locations where water is likely to be spilled, such as toilet rooms, locker and shower rooms, slop-sink closets, and such locations, consideration should be given only to burned tile or terrazzo.

By the use of modern materials, such as asphalt tile, linoleum, rubber tile, burned tile, terrazzo and composition, for main entrance halls, we find a great opportunity for working into the design reproductions of school emblems, school colors, etc., and other decorative features.

When resilient types of floor coverings, such as asphalt tile, linoleum, cork, and rubber tile are used in kindergartens, we have an opportunity to incorporate in the floor design, circles and instructive features that are helpful in connection with kindergarten activities. We must remember, also, that a resilient, dustless, and more or less warm floor is necessary in a kindergarten for the reason that the children sit and play upon it.

When certain new types of floor coverings are used, it is possible to save money in connection with the construction of the supporting floors, apart from whatever difference of cost there may be between the respective types of coverings. For instance, suppose a wood maple floor is contemplated with a wood sleeper subfloor. Money could be saved by changing to a new type of floor covering, omitting the wood sleeper subfloor, and laying the new floor covering directly on the floor construction itself. This means that about one foot in the total height of the building would be saved at a possible saving of several thousand dollars.

FLOOR AND FLOOR-COVERING CHART

Showing Locations for Various Types of Floors and Floor Coverings in Schools

		Cement	Asphalt-Tile	Composition	Cork	Linoleum	Rubber-Tile	Terrazzo	Tile	Wood
(a)	Classrooms		x		x	x	x			x
(b)	Toilet Rooms							x	x	
(b)	Washrooms							x	x	
(b)	Slop Sink Closet							x	x	
(c)	Dispensaries		x		x	x	x			
(c)	Nurses Quarters		x		x	x	x			
(b)	Locker & Shower Rooms							x	x	
(a)	Auditorium	x	x	x	x	x	x			
(c)	Corridors		x	x	x	x	x	x	x	
(d)	Entrance Foyers		x	x	x	x	x	x	x	
(e)	Entrance Vestibule							x	x	
(f)	Libraries		x		x	x	x			
(p)	Cafeterias		x	x	x	x	x	x	x	
(g)	Kindergarten		x		x	x	x			
(h)	Kitchen, Service			x				x	x	
(b)	Domestic Science		x	x		x	x	x	x	
(b)	Conservatory							x	x	
	General Laboratories		x		x	x	x			x
	Physics Laboratories		x		x	x	x			x
(i)	Chemistry Laboratories		x		x	x	x	x	x	x
(i)	Biology Laboratories		x		x	x	x	x	x	x
(b)	Sewing Rooms		x		x	x	x			x
(a)	Music		x		x	x	x			x
	Social Rooms		x		x	x	x			x
(a)	Restrooms		x		x	x	x			x
(a)	Teachers' Workrooms		x		x	x	x			x
(j)	Gymnasium		x		x	x	x			x
(b)	Storerooms	x						x	x	x
	Conference		x		x	x	x			x
	Administration		x		x	x	x			x
	Projection Booth	x						x	x	
(k)	Auditorium Stage									x
	Stage Dressing Rooms		x		x	x	x			x
	Art & Drawing Rooms		x		x	x	x			x
	Foundry	Properly prepared dirt floor								
(l)	General Shops									x
(m)	Auto Shops	x								
(p)	Boiler Room	x								
(p)	Coal Vault	x								
(b)	Fan & Engine Rooms	x						x	x	
(b-e)	Swimming Pool								x	

(x) Denotes: Type of floor suitable for consideration.

Note: Where more than one kind of material is mentioned, the question as to which to select should be settled on the basis of price in relation to merit, the design effect desired, cleaning and maintenance, and by keeping in mind the special desirable qualities designated by the following marginal references applying to the above chart:

(a) Acoustical qualities.
(b) Sanitation and cleanliness.
(c) Sanitation and warmth (cold materials are uncomfortable to bare feet of children being examined.
(d) Suitability for artistic treatment.
(e) Resistance to water and dampness.
(f) Noiselessness.
(g) Sanitation, warmth and design.
(h) Sanitation, resiliency.
(i) Resistance to chemicals and water respectively.
(j) Resilient sub-floor construction.
(k) Suitability for stage scenery screws.
(l) Suitability for bolting down benches, lathes, etc., and to save damage to dropped tools.
(m) Suitability for heavy loads, grease and oil.
(n) Sanitation, ability to resist hard wear, sound-deadening value.
(o) Sanitation and sound-deadening value.
(p) Resistance to wear.

Strict attention must be paid to the proper cleaning of all types of floors, it is very important that only tested and approved cleaning agents be used because strong soaps and washing powders containing free alkali or abrasives soon ruin the surface. It is a point of economy where resilient floors are used, to apply finishing wax or other approved special preparation at definite intervals.

The following points should be given consideration and each point should be carefully weighed before deciding upon the type of floor best suited for each particular location:

1. The initial cost in comparison with length of life.
2. The expense for cleaning and maintenance.
3. The degree of ability to withstand abuse.
4. Resiliency, should location demand.
5. Acoustical and noise-deadening value where desirable.
6. Sanitary qualities.
7. Fire-retarding qualities.
8. Nonslip qualities.
9. Suitability for damp and wet locations.

Various Types of Floor Coverings and Suitable Locations for Use

Asphalt Tile, Linoleum, Cork and Rubber Tile: Classrooms, dispensaries, and nurses' quarters, auditoriums, corridors, entrance foyers, libraries, cafeterias, kindergartens, domestic science, miscel-

(Concluded on Page 86)

[1]Formerly Architect of the Cleveland, Ohio, Board of Education. Now member of the firm of W. L. Stoddard and Geo. M. Hopkinson, New York.

EXTERIOR VIEW SHOWING ADDITIONS, WALTHAM HIGH SCHOOL, WALTHAM, MASSACHUSETTS
Kilham, Hopkins & Greeley, Architects, Boston, Massachusetts.
(See preceding page.)

Planning the *Social-Studies* Classroom

Albert A. Orth, Terre Haute, Indiana

It might almost be said that such a room does not exist in American schools. As in the case of all generalizations, there are exceptions, and it is these exceptions which have largely provided material for this article.

In too many schools, the social-studies classroom is merely another room assigned to classes in an academic subject. It may be the social-studies room for only one half of the day, or an English room. This is possible because no special equipment is considered necessary for instruction in social studies. The same blackboards, the same desks, the same chairs, and other equipment used for, say, mathematics, seem equally adapted to social-studies instruction.

Replies to inquiries addressed to boards of education in a number of large cities, as well as observations of classrooms by the writer, constitute the source of factual data for this discussion. Certain of our largest cities make no special provision for classrooms for social studies. Boston[1] makes no such provision, and our largest city, New York, has not developed any standard social-studies classrooms as yet.[2] Des Moines apparently has such rooms but detailed information concerning them was not available at the time of the preparation of this material.[3] From the observations of the inspectors of the Indiana Department of Education, "there has been nothing done throughout the state to especially lay out and plan the social-studies classroom or laboratory."[4] The writer has noted few, if any, articles or diagrams of such rooms in the educational periodicals.

Data concerning the social-studies classroom, based on rooms in use in their school systems, was furnished by the following city school corporations: Detroit, Michigan;[4a] Los Angeles, California;[4b] Sacramento, California; Shawnee, Oklahoma; Indiana State Teachers College Training School, Terre Haute, Indiana (a school operated jointly with the Terre Haute public schools).

Other information for this study was furnished by the Indiana Department of Education, and William B. Ittner, architect, St. Louis, Missouri.

Class size will necessarily determine room size. Class size is often based on rulings or standards set up by state departments of education. Indiana[5] place the pupil-teacher ratio for elementary grades at approximately 1 to 36. The high-school ratio is about 1 to 35, no distinction being made between the lower grades of the elementary school, and the upper or junior-high-school grades. There seems to be a tendency to increase class size in all schools, particularly in those classes which are in purely academic subjects. The ordinary high-school social-studies class will probably include 25 to 30 students. In the Indiana State Teachers College Training School, rooms are planned to accommodate approximately 32 students in social studies.[6]

It would seem desirable that when more than one social-studies classroom is needed, that the rooms should adjoin or connect with each other. Some schools provide a departmental office.[7] School

[1]Information from William W. Drummey, Superintendent Department of School Buildings, Boston, Mass.

[2]Information from Walter C. Martin, Architect, Superintendent of School Buildings, Board of Education of the City of New York, 1935.

[3]Information from A. W. Merrill, Acting Superintendent, 1935.

[4]Information from T. H. Mahan, Assistant Director, Division of Elementary and High School Inspection, 1934.

[4a]Information furnished by E. O. Fox, Director, Department of Buildings and Grounds, Board of Education.

[4b]Information furnished by Frank O. Evans, Assistant Director, Bureau of Educational Housing, Board of Education of the City of Los Angeles.

[5]See note 4.

[6]Information from Otis G. Jamison, Principal.

[7]Indiana State Training School.

A JUNIOR-HIGH-SCHOOL CLASS IN THE SOCIAL-SCIENCE ROOM. LABORATORY SCHOOL. INDIANA STATE TEACHERS COLLEGE. TERRE HAUTE. INDIANA.

architects advise a workroom in connection with the classroom.[8]

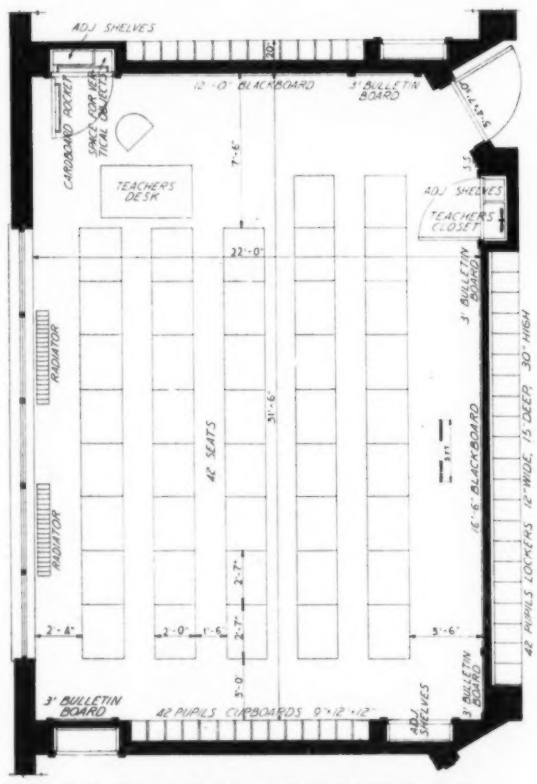
Table 1 presents data regarding length, width, and height of social-studies rooms.

TABLE 1. Dimensions of Social-Studies Classrooms

City and School	*Length*	*Width*	*Height*
Detroit, elementary.	30 ft.	22 ft.	12 ft.
Los Angeles, high school	30–33 ft.	23 ft.	12 ft. 6 in.
Sacramento, junior high	29 ft. 8 in.	24 ft. 10 in.	12 ft.
Shawnee, Jefferson School	33 ft. 10½ in.	23 ft. 1 in.	12 ft.
Indiana State Training School	33 ft. 6 in	21 ft. 6 in. 23 ft. 6 in.	12 ft.
Indiana Dept. of Education Standards	32 ft.	23 ft.	12 ft.
Ittner opinion	38–40 ft.	22 ft.	12 ft.

From Table 1 it may be learned that the average length of typical social-studies rooms is approximately 33 feet, with the average width about 22 feet 8 inches. The height of the ceiling, where this is given is either 12 feet or 12 feet 6 inches. The actual floor space in such a room would be approximately 773 square feet. This would provide more than 25 square feet of floor space per student in a class of 30 pupils. The minimum amount of floor space per pupil, according to the standards of the Indiana Department of Education, is 15 square feet. However, all well-arranged rooms provide for clear space both in front of the room and at the rear.

[8]William B. Ittner.



FLOOR PLAN OF THE SOCIAL-SCIENCE ROOM. LABORATORY SCHOOL, INDIANA STATE TEACHERS COLLEGE, TERRE HAUTE, INDIANA
Frank E. Curtis, Architect.

When social studies are taught by the methods used in instruction in science, or the laboratory plan, much more is needed in the planning of the room than the mere construction of a shell with blackboards lining the walls. Attention must be paid to adequate lighting, both natural and artificial. Los Angeles, in its standards for high-school rooms, stipulates that the window area must be not less than one sixth of the floor area. Windows are placed toward the rear of the room.[9] In the Sacramento junior-high-school building, the social-studies room is provided with 6 windows, 12 feet by 3 feet 4 inches.[10] The specifications for windows from Los Angeles are for typical high-school classrooms, while those from Sacramento represent a specially planned social-studies room.

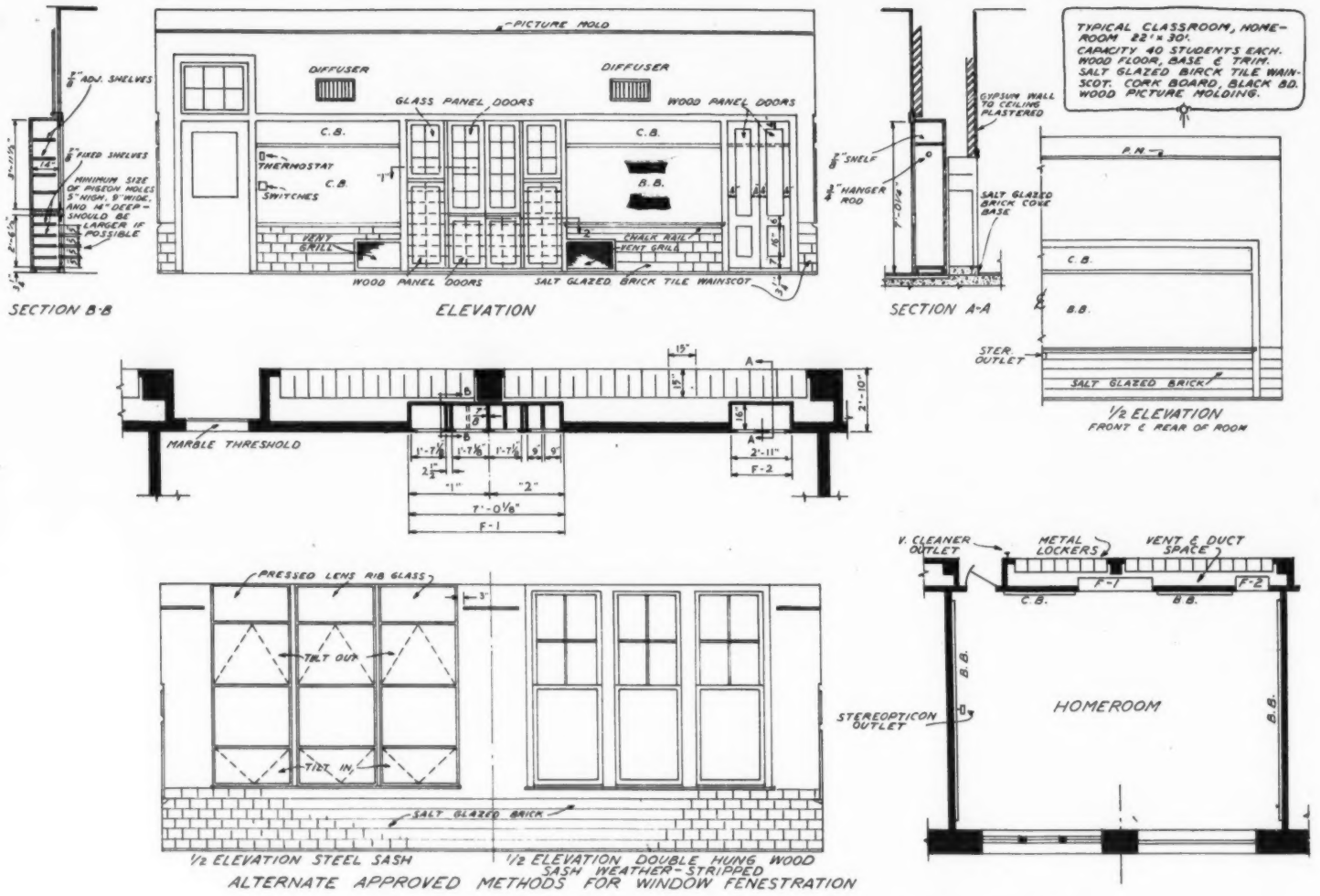
The social-studies room does not need as much blackboard space as is demanded in rooms for instruction in other subjects, such as mathematics. The amount of blackboard work done by the pupils is small, compared to that necessary in foreign languages or mathematics. The social-studies teacher would prefer that corkboard be substituted for blackboard. Classrooms in the Sacramento junior high school and the Indiana State Teachers College Training School provide blackboard only on the front wall at the teacher's end of the room.

All teachers of these subjects, and particularly those who follow the laboratory plan of instruction place pictures, maps, posters, and other types of illustrative materials before the students on bulletin or tackboards. There are many types of boards which can be used for display purposes, and many teachers, due to lack of funds, have used makeshift equipment, but corkboard is the only fully satisfactory material. Tacks can be inserted and withdrawn easily. The holes made by the tacks gradually draw together in a cork surface, but this is not true of other bulletin-board material. It can almost be said that it is impossible to provide too much tackboard surface. The social-studies room mentioned in this article provides a large amount of tackboard, with this material covering the space which would be used for blackboard on the rear or side walls, and strips above the slate surface in the teacher's end of the rooms. When it can be done, some bulletin-board surface should be placed near the doors leading to the corridors, so that pupils may not fail to see important material displayed there.

The day has passed, it is to be hoped, when a flimsy desk for the teacher, and a few dozen desks or chairs for students, are considered sufficient furniture or equipment for any classroom. Nowadays, with modern methods of social-studies instruction, there is an urgent need for bookshelves, cabinets, drawers, filing cases, and display cases. Economy in room space can be obtained by built-in equipment of this type. The Jefferson School, Shawnee, Oklahoma, provides a storage and book cabinet in the rear of the room, with storage cabinets above the lockers on the corridor side. Forty-four pigeonholes for students' book storage are placed under the windows. In the Sacramento junior-high-school-building social-studies room adjustable shelves are placed at both sides of the teacher's end of the room; a panel-door map rack is underneath the blackboard at the center of this end, and additional cupboard space is under the

[9]See plan of room.

[10]See plan of room.



PLAN FOR TYPICAL SOCIAL-SCIENCE ROOM IN ELEMENTARY SCHOOLS, DETROIT, MICHIGAN
Prepared by the Department of Buildings and Grounds of the Detroit board of education.

shelves at the left of this end of the room. Eighteen pigeonholes and additional shelf space are placed on the corridor side. In the Indiana State Teachers College Training School classrooms one or two units, consisting of bookshelves behind glass doors, shelf space closed by wood-panel doors, and drawers of two sizes, are found in each unit of the social-studies suite. Built-in filing cases of letter or legal size are practical devices for storing miscellaneous display material.

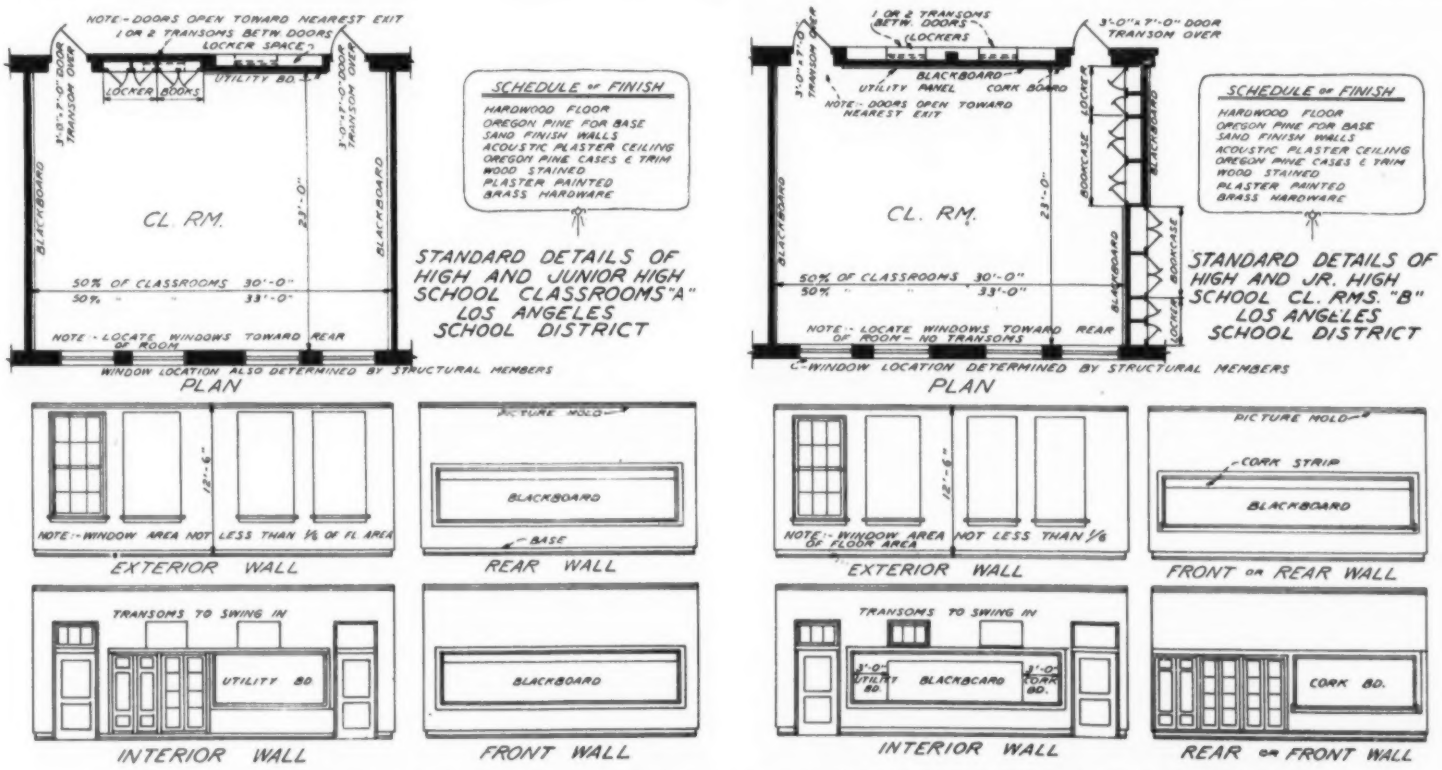
The rooms for which plans are shown indicate wise planning and arrangement of built-in features. Careful location of blackboards, bulletin boards, and built-in storage space in reference to doors and windows, add much to the value of the room. Two doors, when possible, facilitate the change of classes without undue congestion of traffic.

There is no reason why walls or floors of the social-studies room should differ from walls or floors in other academic classrooms. The plans illustrated indicate that the ceilings and wall are of ordinary plaster, and the floors of asphalt composition, wood, or tile. Los Angeles high-school classrooms have ceilings finished with acoustic plaster.

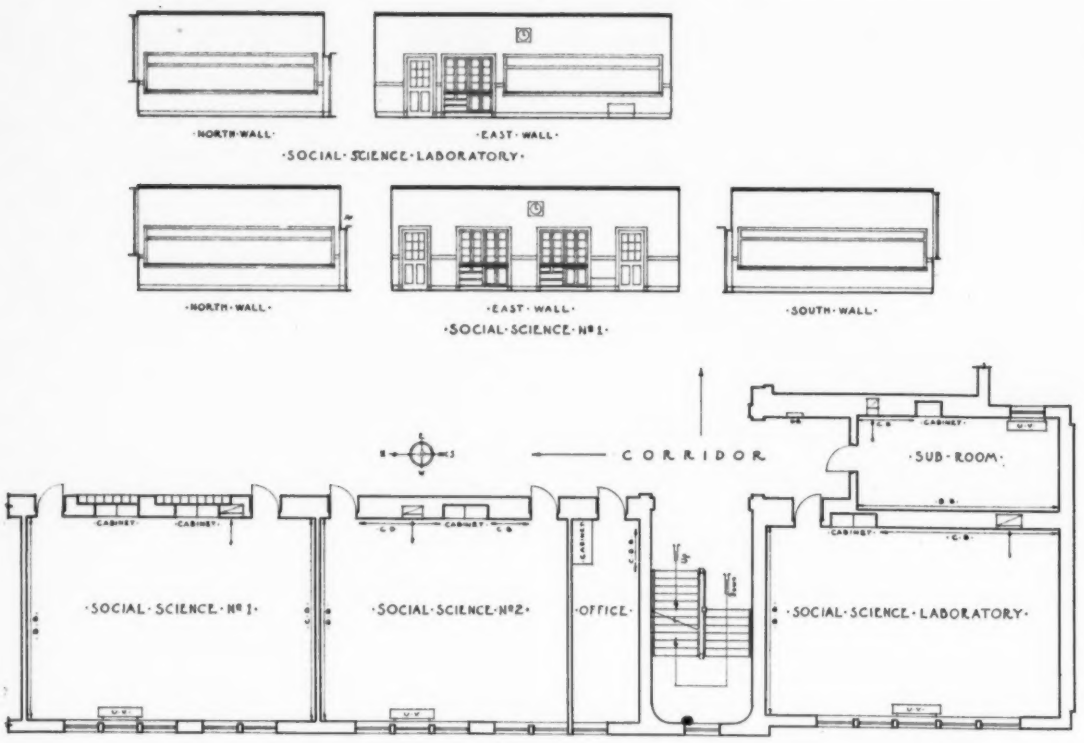
Nearly all classrooms in buildings of recent construction are equipped with some indirect, or at least inclosed, type of lighting. Needless to say, this is the only fully satisfactory type of artificial illumination for mapmaking and other activities carried on in a social-studies laboratory. Care should be exercised to see that there are sufficient lighting units with bulbs large enough to provide a minimum of 12 foot-candles illumination. Testing with the sightmeter will indicate the adequacy of the light. A separately controlled light over the teacher's desk, or a wall outlet for a desk lamp, will permit the use of the room by the teacher without operating all of the lighting units.

Many older-type classrooms have no convenient provision for the attachment of a projector. Wall outlets at the rear of the room are a necessity in the use of stereopticon or motion-picture machine.

In the Sacramento junior-high-school buildings and in the State Teachers' College Training School



STANDARD DETAILS OF SOCIAL-SCIENCE CLASSROOMS, HIGH AND JUNIOR HIGH SCHOOLS, LOS ANGELES, CALIFORNIA
Prepared by the Division of Architecture of the Business Department, Los Angeles Public Schools.



SOCIAL STUDIES ROOMS, INDIANA STATE TEACHERS COLLEGE, TERRE HAUTE, INDIANA
Miller and Yeager, Architects, Terre Haute, Indiana.

radio loud-speakers are provided. Such equipment effectively used will add much to the vividness and realism in the teaching of history or current events. Many of the most worth-while broadcasts of important historical events or occasions take place during school hours. If not heard at school, many students who do little or no reading of newspapers, will be entirely ignorant of these events.

A telephone system within the building or a buzzer signal system connecting with the office is provided in the more modern layouts. Similarly, electrically operated clocks, conveniently placed, add to the conveniences of the rooms.

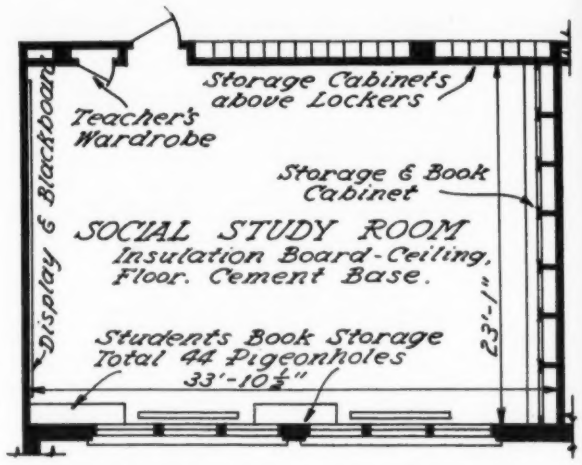
The heating and ventilating systems of the social-studies rooms will, of necessity, be the same as in the other rooms of the building. They should require the minimum of attention by teacher and students.

The tendency seems to be away from the conventional school desk as seating equipment in social-studies rooms. The more flexible types, such as combination chair-desks, or tables and chairs, are being used.[11] Movable desks or tables permit laboratory work, and permit the use of the room space to a greater extent than is possible with fixed seats. Unless book-storage space is provided for pupils in built-in shelves or drawers, the pupil desks should have some type of drawer or storage space for materials.

Many times teachers have found that their desks were wholly inadequate as to space for books and other teaching materials which they wish to have readily at hand. The desk should have at least four or five drawers of a size sufficient to contain books, paper, and necessary desk supplies. The writing bed of the desk should be large enough to permit handling of papers with ease. All parts of the desk should be provided with locks. Too often the teacher's desk is the cheapest and most carelessly selected piece of furniture in the room.

A large table where maps or other materials of like nature can be placed is needed in every social-studies room.[12] Chairs for student groups should be provided. It has been the experience of the writer that a glass-inclosed display cabinet which can be locked is a valuable adjunct to teachers who have or can obtain exhibits or valuable material for display to students. Such a case need not be expensive but may be a modification of the upright showcase often used in food stores for bakery products. This type of case usually has one or more shelves spaced far enough apart to permit the display of more or less bulky objects. A well-known school architect[13] suggests a wardrobe in the rear of the room. If a built-in filing case is not provided, there should be some type of file suitable for filing sheets of letter size or larger. If no built-in bookshelving or storage space is provided, there should be bookracks and storage cabinets.

Map equipment is one of the most important items in any social-studies room. Many good maps are of little use because of poor or impractical mounting. The tripod-stand mounting is worse than useless in a crowded classroom because of the floor space it occupies. It is also impractical in arrangement because it is usually not equipped with a loose-leaf mounting for the maps. The most satisfactory mounting seems to be the type with one or two maps on each sheet attached to a spring roller with an oilcloth covering so arranged as to cover the map surface when rolled. When a map rail is provided individually mounted maps can be used since they can be readily moved from place to place in the room. Maps can be obtained in interchangeable mountings so that they may be moved from one case to another, thus making it possible for one complete set of maps to serve several rooms.



JEFFERSON SCHOOL BUILDING, SHAWNEE, OKLAHOMA
Hugh W. Brown, Jr., Architect, Shawnee, Oklahoma.

There are many history teachers who have taught class after class year after year with only the ordinary political maps, intended primarily for geography classes, as teaching tools. While most social-studies rooms can use these maps as supplemental material, they are not sufficient. Specially designed maps illustrating the different historical periods, as well as charts of the organization of government, are a necessity. Maps for history are so readily obtainable, at prices no greater than other laboratory equipment, that there is little reason for their absence. Some excellent maps, useful in American history, are obtainable from government departments or officials.[14] When unmounted, they are usually in such form as would permit mounting without great expense. Other maps are available at cost price.

No social-studies classroom can be considered completely equipped which does not have some type of projector, the best equipment being the sound-motion-picture projector. Silent-motion-picture projectors, slide machines, and filmslide pro-

[11]Information from Indiana State Teachers College Training School.

[12]William B. Ittner.

[13]See note 12.

[14]Map of the United States, issued by Land Office, Department of the Interior; obtainable free from Members of Congress.

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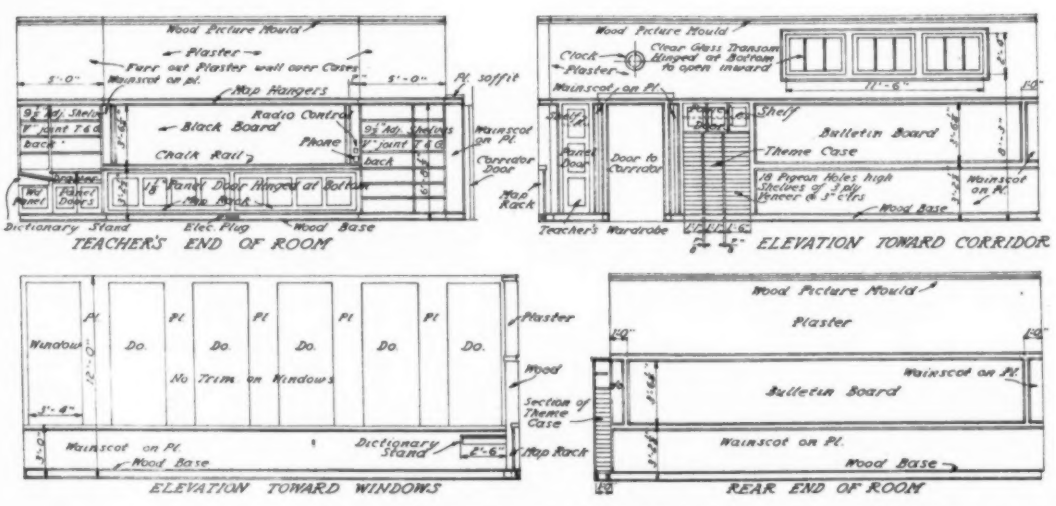
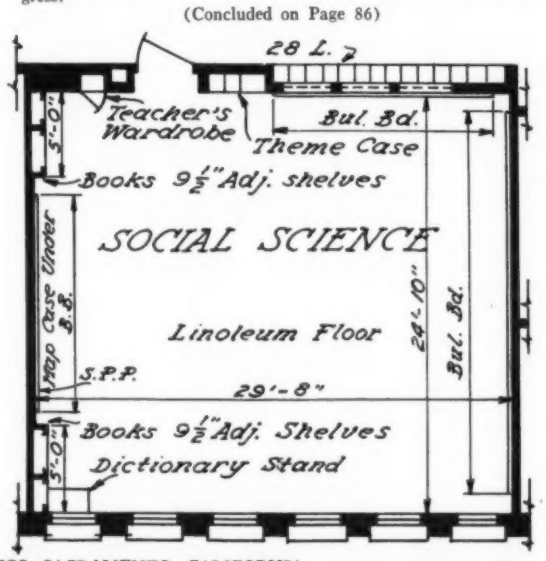




TYPICAL DETAILS FOR SOCIAL-SCIENCE CLASSROOMS IN JUNIOR-HIGH-SCHOOL BUILDINGS, SACRAMENTO, CALIFORNIA
Layout prepared by the Education Department of the Sacramento City Schools.

GENERAL EXTERIOR VIEW, PIERRE S. DU PONT HIGH SCHOOL, WILMINGTON, DELAWARE
E. William Martin, Architect, Wilmington, Delaware.

The *Pierre S. du Pont* High School in Wilmington

A Project in Co-operative School Planning

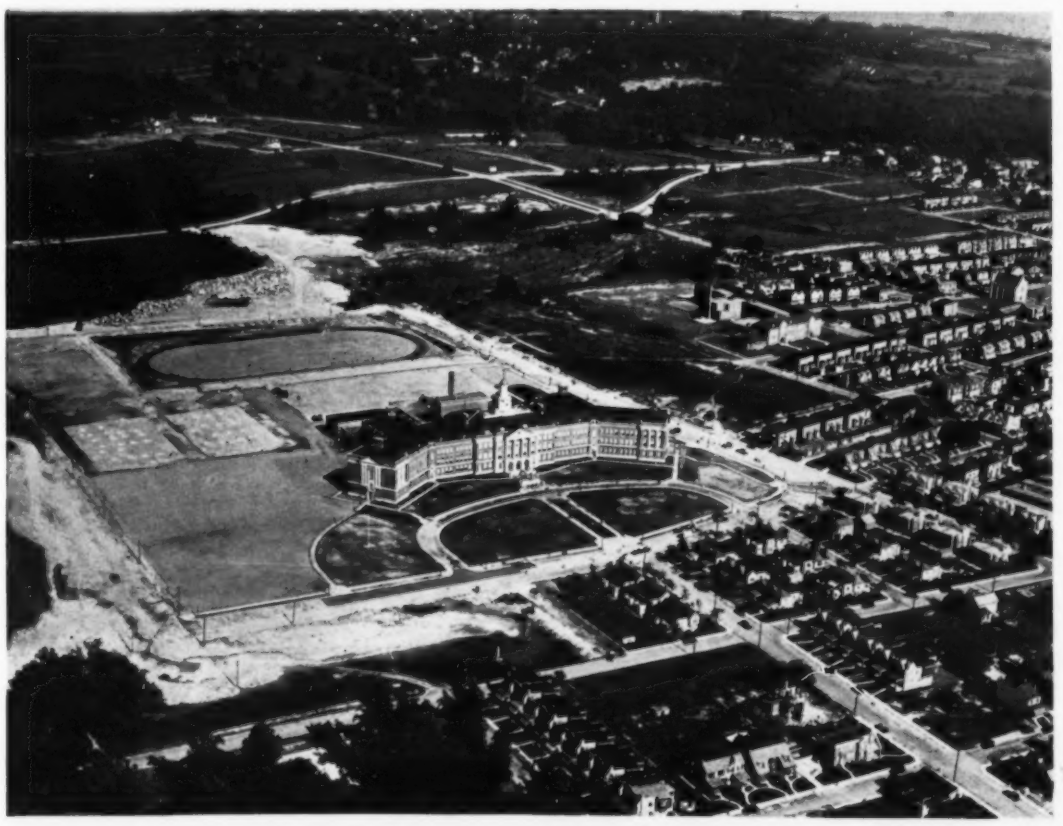
***S. M. Stouffer*[1] *and Murray L. Miller*[2]**

Scarcely two decades have passed since the people of Delaware began to awaken from their deep educational sleep. The General Education Board Survey in 1919 revealed a multiplicity of impoverished rural districts, each with its separate school committee and tax collector. Sixty-seven per cent of all teachers, and 94 per cent of the rural teachers were found to have inadequate professional preparation. The average annual current expenditure for education in rural white districts, based on total enrollment, was $20.33 per child. In rural schools for colored children, which are separate in Delaware, the average annual current expenditure was $8.29 per child. A state school fund existed, but was used for a flat annual appropriation of $188 per teacher to all districts regardless of number of teachers employed or ability to support education. The law required a minimum of an additional $100 per teacher to be raised locally by means of a capitation tax and a real and personal property tax, the latter sometimes requiring assessments as high as $2.25 per $100 full valuation in order to raise the minimum amount. More than three fourths of the rural schools were one-room shacks to which modern sanitary facilities were unknown. In winter the children crowded about old-fashioned heaters of Civil War variety. The General Education Board found geography maps in use (after the World War) which had been published prior to the Civil War. Although almost 40 per cent of the children of the state were on part-time rosters and school attendance was scarcely better than 60 per cent, the several hundred little districts stoutly maintained a chatty devotion to their highly prized independence. A surprising percentage of the school buildings had given more than a half century of service. The city schools were chiefly of the interior-column type, larger, but otherwise scarcely better than the rural schools. Many were dark, hazardous, and unsafe. The demand for better facilities was born of a crying need.

In contrast with these conditions of a few years ago, today Delaware has scores of modern centralized schools. The tale of what has happened in the brief period since 1920 is a story in itself. It is sufficient to say that civic organizations campaigned, the citizenry became aroused, and private philanthropy led the way. Income taxes and corporation franchise taxes replaced the real estate tax, and generous state grants for new school buildings induced small districts to consolidate. Today practically every antiquated structure within the borders of Delaware has been replaced. From the northernmost line of Brandywine Hundred to the lower border of Sussex county, the children attend well-equipped, modern schools. The schools for colored children are second to none in America. The city of Wilmington accommodates 68 per cent of its total public-school population in building not more than ten years old. By means of large reserves in the State School Fund, built up during prosperous years, Delaware has continued her school-building program with increased vigor since 1929.

The Pierre S. duPont High School

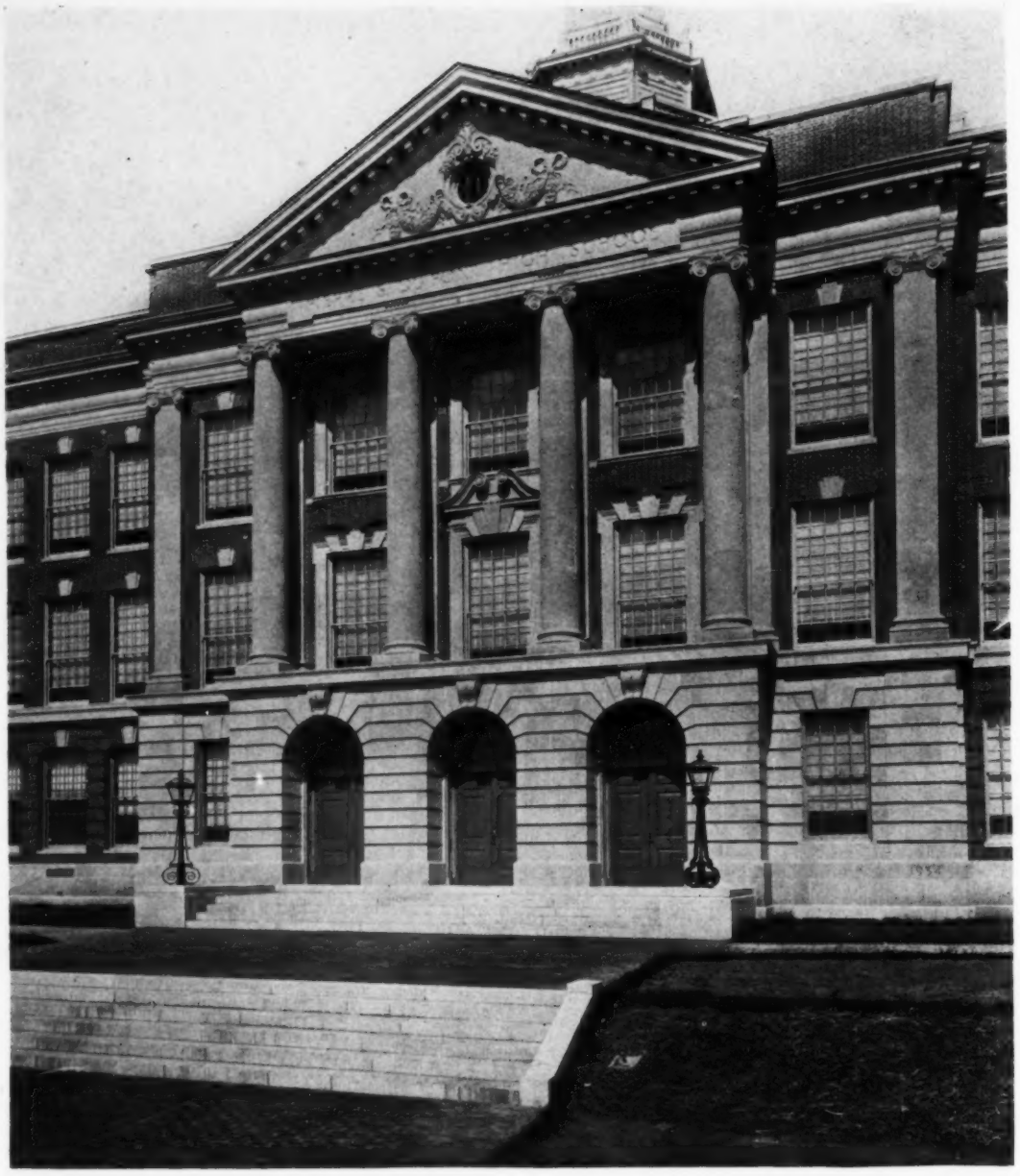
The Pierre S. duPont High School in Wilmington is an outstanding example of co-operative school planning in which the entire community participated. Committees of secondary-school teachers, heads of departments, principals, supervisors, members of the superintendent's cabinet, members of the board of education, and representative citizens began to study the city's educational and vocational needs more than two and a half years before the funds



AERIAL VIEW OF THE PIERRE S. DU PONT HIGH SCHOOL, WILMINGTON, DELAWARE
E. William Martin, Architect, Wilmington, Delaware.

[1]Superintendent of Schools, Wilmington, Delaware.

[2]Supervisor of Industrial-Arts Education, Wilmington, Delaware.



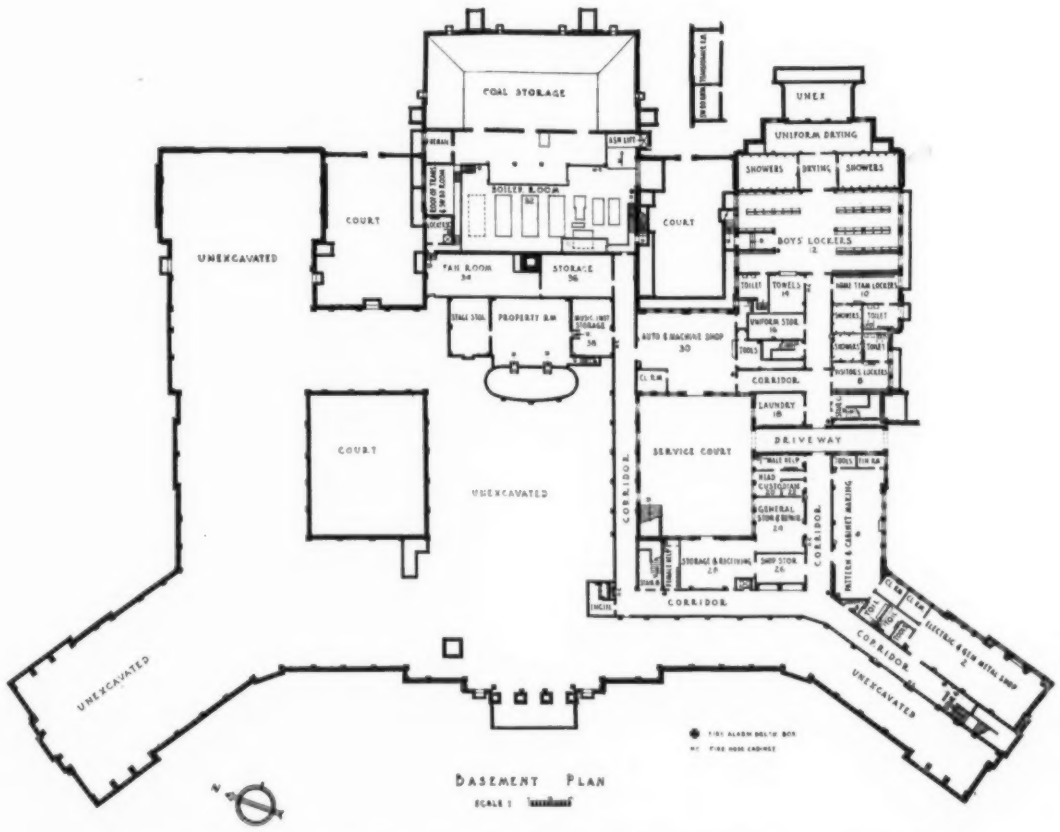
DETAILS OF THE MAIN FACADE, PIERRE S. DU PONT HIGH SCHOOL, WILMINGTON, DELAWARE
E. William Martin, Architect, Wilmington, Delaware.

were made available. A co-operating committee of citizens, after an intensive study, brought before the superintendent facts about local trades and employment. Other committees, made up of the educational personnel, worked out what they considered the particular requirements of the various departments. The data assembled were analyzed and their manifold implications brought into view. On these bases the ideas of the educational personnel were proposed in tentative sketches. All data, the statement of their implications, and the rough sketches were submitted to the school architect, E. William Martin, A.I.A., who set about developing the plans. Because it was felt that the public, after being informed, would support the proposed building program, plans were being prepared in the architect's office almost a year before funds were provided by the Delaware General Assembly. The architect took the sketches and layouts of rooms, departments, and service units as submitted and translated them into a unified plan. Gross size was determined from predicted enrollments and population trends. The superintendent's office became the focal point of the planning activities. From this office the architect's blueprints of rooms and units were passed out to the educational committees for criticism. With notes and suggestions attached, the revised sketches were returned to the superintendent and thence to the architect. This interchange continued about a year, during which the plans passed back and forth for revisions almost a score of times. Other modern high schools were visited, special local problems were analyzed, and available aid was sought in an endeavor to produce a modern school plant as nearly adapted to the educational needs of the community as possible. The completed structure is the result of co-operative thinking and planning. Its remarkable suitability for meeting the educational program could not have been secured in any other way.

The completed building is a fitting tribute to Mr. Pierre S. duPont, the great Delawarean whose name it bears. Beginning in 1920, Mr. duPont has generously given to Delaware 106 modern school buildings and has assisted with 67 others, including extensive additions to the University of Delaware. The gifts of Mr. duPont have totaled not less than $8,500,000. This stimulus launched the state school-building program which has increased the value of the school plant to $19,000,000. First of the thirteen colonies in statehood, Delaware is now among the first in maintaining public schools for the preservation of the democracy she helped to create.

Mobilizing Public Opinion

Mention has been made of the survey of schoolhousing conditions. After a survey of this kind, existing buildings are usually found capable of accommodating many more than was at first believed. The opposite situation was found in this case. Several rooms in the existing high school were ordered evacuated by the Wilmington fire department. With these facts and other evidence, the superintendent began to inform the public of the need for additional facilities. At least four different agencies were employed for this purpose. First, meetings and addresses were used. The culminating act of the campaign was a mass meeting sponsored by the Chamber of Commerce and addressed by the superintendent and Mr. Pierre S. duPont, the latter in the capacity of state tax collector. In this meeting the superintendent pointed out the need, and Mr. duPont gave the essential facts to show the ability of the state treasury to finance the project. The second and most effective agency was the local press. The Wilmington newspapers gave liberally of news space, and supported the program editorially. A third agency was the civic organizations which were found ready and willing to help. Service clubs passed resolutions or made public statements in favor of the new high school.



BASEMENT PLAN, PIERRE S. DU PONT HIGH SCHOOL, WILMINGTON, DELAWARE
E. William Martin, Architect, Wilmington, Delaware.

Soon it was realized, however, that some coordinating body was needed as a clearing agency for public opinion so that it might be better expressed and effectively felt. For this purpose the superintendent requested the Chamber of Commerce to sponsor a "citizens' committee," comprising 24 representatives of educational, business, and civic interests of the city. The "Citizens' Committee" rose to its task with uncommon zeal, and through various organizations, newspapers, meetings, and addresses, expressed effectively the sentiment of the people to the Governor and the General Assembly. The Committee was responsible for some 35,000 signatures to petitions requesting the appropriation of funds for the construction of additional high-school facilities. In May, 1934, the General Assembly appropriated $2,500,000 for state school-building purposes, including $1,500,000 for a high-school building in Wilmington.

How to translate legislation into steel and stone! Careful planning had been going on for months. It was anticipated that the public would clamor for construction to begin as soon as the money had been appropriated, since the unemployment situation had become acute. There was a minimum of delay. Within a few months excavators were at work. With the exception of the time required to arrange for the grant from Public Works Administration funds, no delays were encountered.

The Building Site

The building is situated on the highest elevation of a rectangular 22-acre site (850 by 1,190 feet), overlooking a growing residential neighborhood in the northern section of the city. It is served by three electric car lines and is free from railroads, busy streets, and malodors. Light is entirely unobstructed. The grounds provide for ample landscaping, walks, and drives, parking space for 400 cars at the rear of the building, and a football field and stadium. Tennis courts and practice and playing fields occupy the remainder of the grounds. The building faces southwest.

MR. PIERRE S. DU PONT

Mr. duPont has personally presented to the State of Delaware scores of modern school buildings, his gifts amounting to $8,500,000. Of no less importance is the great influence he has exerted in encouraging the state school-building program.

AN ART ROOM, PIERRE S. DU PONT HIGH SCHOOL, WILMINGTON, DELAWARE

THE LIBRARY READING ROOM, PIERRE S. DU PONT HIGH SCHOOL, WILMINGTON, DELAWARE

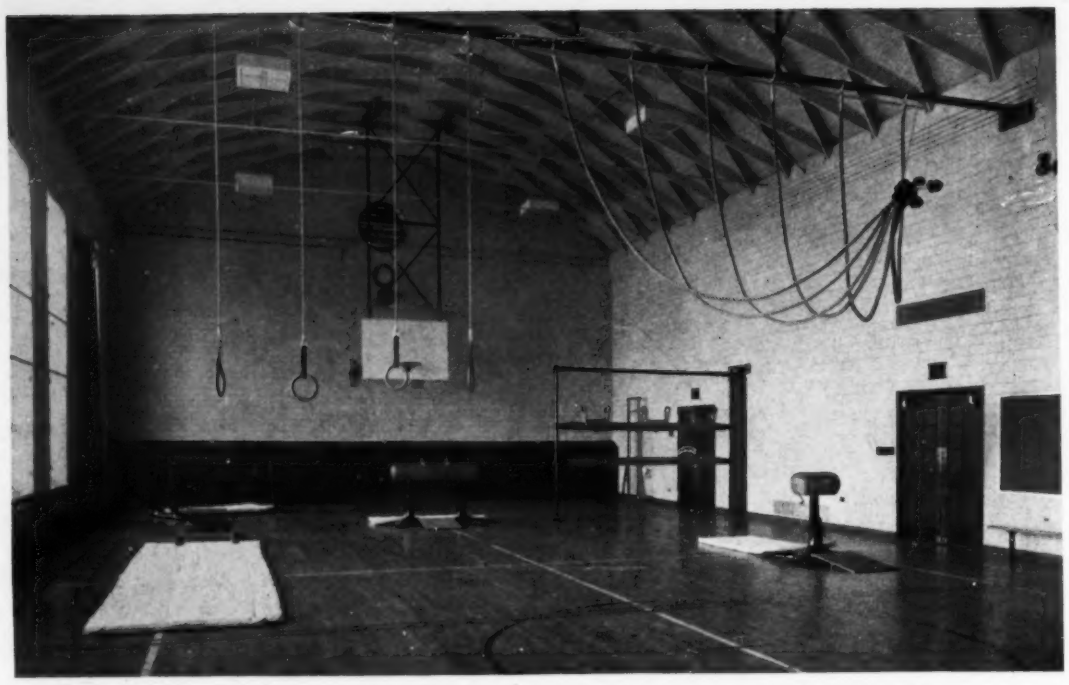
A Description of the Building

The architectural style is appropriately Georgian, a type of architecture long associated with historic Delaware. Located at the head of a principal street, the main façade is monumental, the extending wings seeming to embrace the approaching visitor. The gross structure contains 165,000 square feet of floor space, 3,700,000 cubic feet of volume; it is planned for an enrollment of 2,250 pupils in grades 10, 11, and 12. It stands today as a monument of beauty and utility achieved because the architect and engineer have built into, and out from, the requirements of the educator.

The building is constructed of steel and concrete, with red-brick walls and granite and limestone exterior trim. The tile roof is framed of steel and heavy timber, and is crowned with a white cupola, typical of colonial buildings. The structure, built in 500 working days, has 2,628 pupil stations and a working capacity of 2,250 pupils in grades 10, 11, and 12.

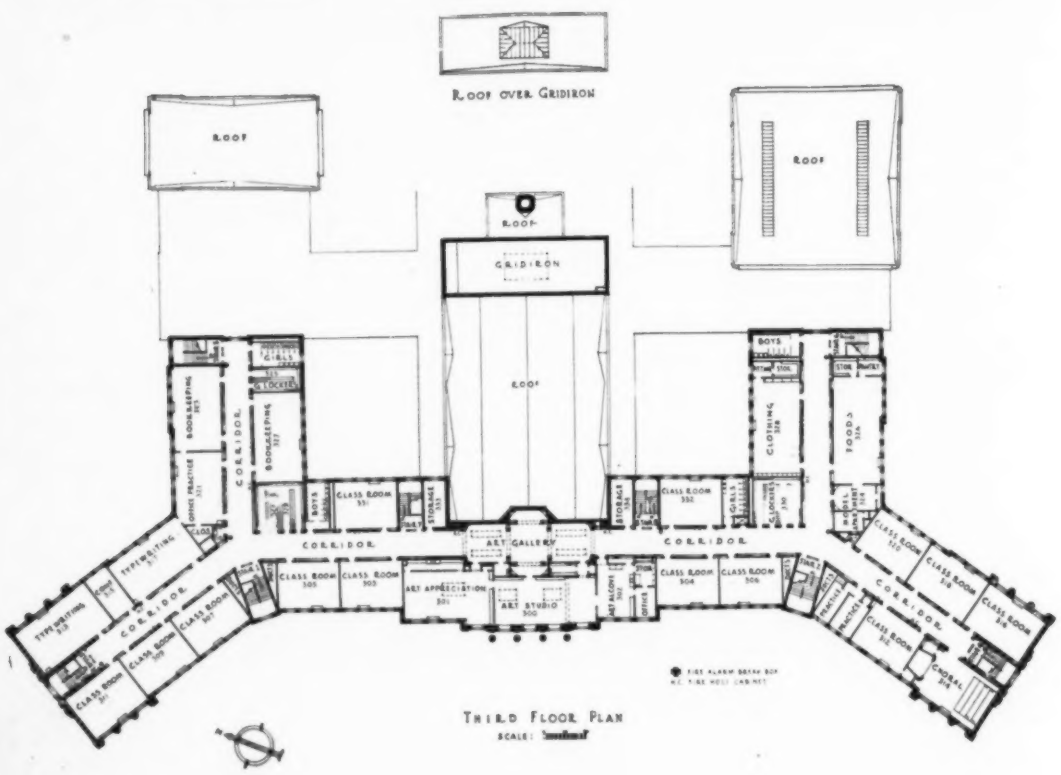
An inspection of the plan shows that the angle of the wings is oriented so as to reduce dark spaces to a minimum. Possible future additions have been provided for. The main entrance is at the axis of the building, easily accessible to the offices and auditorium. The classic façade imparts a dignity rarely matched. Colonnading the main entrance are white pillars with Ionic capitals, their delicate scrolls standing out among the interesting detail. In general appearance the building stands as a worthy monument to the victory of the State over the forces of ignorance. From the chief engineer to the humblest laborer, the men employed in its construction seemed to realize that they were engaged in an epoch-making project in the educational development of the city.

An inspection of the foyer and corridors reveals buff-brick wainscot, asphalt-tile floors, plaster walls, and acoustical-plaster ceilings. The walls are of light cream color, and the trim is brown. The main lobby is large and accessible through four corridors, permitting easy access to all parts. Classrooms are situated on both sides of the corridors, and all corridors are served by eight continuous fireproof stair-



GIRLS' GYMNASIUM, PIERRE S. DU PONT HIGH SCHOOL, WILMINGTON, DELAWARE

VIEW OF AUDITORIUM FACING STAGE, PIERRE S. DU PONT HIGH SCHOOL, WILMINGTON, DELAWARE



ways from the top floor to outside exits. These stairways use natural light from the outside; they are of steel, with buff-brick walls and bluestone treads. A passenger elevator is located in the corridor near the main entrance.

The Typical Classroom

The academic classrooms average 22 feet by 29 feet with 12-foot ceilings. They have hardwood floors, dust-resisting metal base and picture mold, metal lath, and plaster walls. The ceilings are white, the walls light cream, the dado light brown, and the trim school brown. Each room has not less than four semi-direct light fixtures and four double-hung windows. Both translucent totine shades and opaque shades are placed in a number of rooms for still and motion pictures. Each room has two corridor doors, 3 by 7 feet with a 6-light transom in the upper half. The interior classroom walls are of gypsum block and the exterior of terra-cotta furring. Each room is laid out with built-in storage cabinets, bookcases, and filing cases. All rooms have heating units which supply filtered fresh air. The furniture consists of 35 American universal desks, teacher's desk and chair, and extra chairs. Aluminum-framed slate boards are found at the front and side, and cork boards have been placed at the side and the rear. The special classrooms vary in size and equipment to meet instructional need. The cost for instructional equipment was approximately $180,000.

Educational Contents of the Building

12 rooms for the administrative suite, including 5 offices, 3 waiting rooms, radio-control room, 2 toilet rooms, and storage room.

4 rooms for the medical suite, including medical room, infirmary, toilet room, and waiting room.

41 typical classrooms, equipped for 35 pupils each, including 10 English rooms, 5 mathematics rooms, 8 social-science rooms, 6 modern and ancient language rooms, public-speaking room, 6 other classrooms, and 5 study rooms in the vicinity of the library.

21 rooms in the main gymnasium suite, including lobby and ticket booth, public restrooms, main gymnasium, corrective gymnasium, 4 toilet rooms, instructor's room, 3 locker and 4 shower rooms (including home-team and visiting-team rooms), uniform drying room, towel room, and equipment-storage room.

21 rooms for the science suite, including seven laboratories, demonstration classroom, 6 storage rooms, 5 instructor's rooms, science conference room, and darkroom.

18 rooms for industrial arts, including 3 shops, mechanical-drawing room, 4 classrooms, 5 storage and supply rooms, 3 toilet and washrooms, finishing room, and blueprint room.

13 rooms in the girls' gymnasium suite, including a large shower room, locker room, 3 toilet rooms, restroom, girls' gymnasium, instructor's room, 2 storage rooms, towel room, and uniform-storage room.

13 rooms in the auditorium suite, including the main auditorium with theatrical stage, balcony, and projection booth; 2 dressing rooms with customary facilities; convertible backstage room; property room; storage room; musical-instrument storage room; and 4 small off-stage rooms. In the main lobby two ticket booths and two checkrooms are conveniently located.

9 rooms for the library suite, including main library reading room, library classroom, alcove, stack room, 2 conference rooms, 3 storage rooms.

8 rooms for the art instruction suite, including art studio, art appreciation classroom, alcove, office, 3 storage rooms, and corridor art gallery and niche.

8 rooms for household arts, including two laboratories, model apartment rooms, two storage rooms, fitting room, and pantry.

8 rooms for the cafeteria unit, including main cafeteria, kitchen, faculty dining room, dietitian's office, pantry, storage room, dishwashing room, and kitchen help room.

7 rooms for the commercial suite, including 5 classrooms, conference room, and storage room.

4 rooms for music, including a specially constructed choral room, 2 sound-insulated practice rooms, and a music classroom.

22 service rooms; 5 engineering rooms, 8 janitors' rooms on the various floors, janitors' toilets, receiving room for supplies, general storage and repair room, bookstorage room, fireman's room, laundry, head custodian's office, and other storage rooms.

Eight stairways from the top floor to outside exits on the ground floor are provided. The corridors and stairways are wide and conveniently located to permit easy circulation of internal traffic, as well as safe and rapid exit in case of fire or other emergency.

The Planning Begins

The first step in the planning was a survey of population and enrollment trends made by Dr. Zenas R. Clark, director of research. By means of the United States census method of arithmetic progression and the Witham Holding Power Index, a gradual increase in high-school

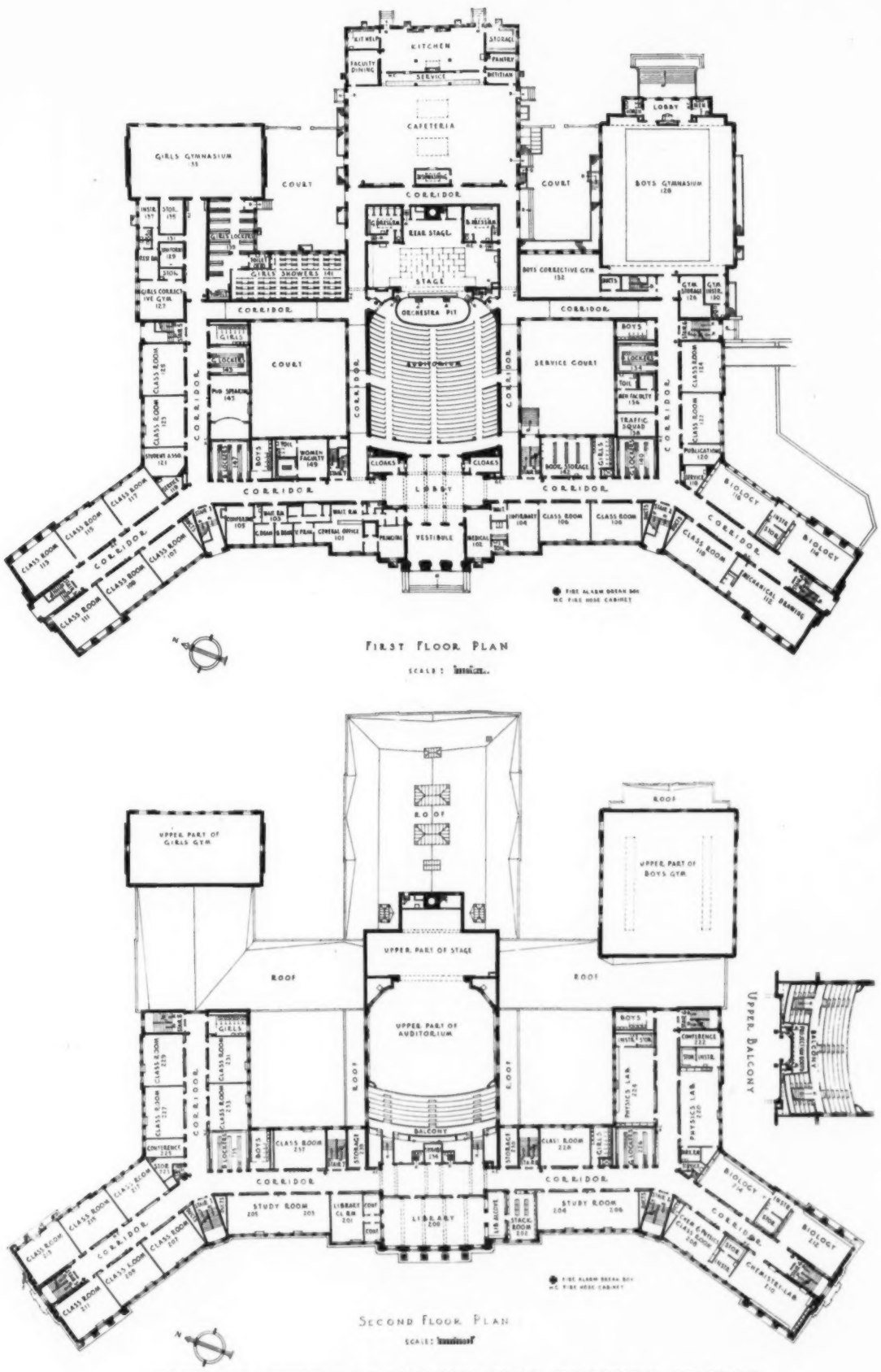
enrollment was found likely to occur. Some eleven new school buildings in Wilmington constructed since 1925 had satisfied the urgent housing need in the elementary- and junior-high-school divisions of the school system. Prior to 1930 the senior-high-school department had not been seriously overcrowded, but enormous increases in enrollment began pouring into the Wilmington High School. As happened in many other communities during the same years, the enrollment outgrew existing facilities. Located within three blocks from the center of the city, the original high-school building constructed in 1901 and an annex built in 1918 provided for a maximum of 2,200 students, but by 1933 the enrollment had reached 3,470. The use of some attic and basement rooms was at first resorted to, but half-day sessions soon became necessary. The change in conditions had occurred so quickly that the public was more or less unaware of the actual crowding. In 1931, long before the problem reached its most difficult stages, the superintendent of schools had begun to bring the facts before the public through the newspapers, and civic organizations.

Previous to the planning of the new building, the co-operative method was employed to develop the educational program of the new school. The planning was begun by the superintendent's cabinet, special-subject supervisors, principals, and ten high-school department heads. The secondary-school teaching personnel and at last the community were interested. Consulting service was used to the extent that the Delaware School Foundation was called on for engineering advice. (This organization was furnished with funds by Mr. Pierre S. duPont in order to provide architectural, engineering, and accounting service to the various school district of the state.) Among other things, the

MR. S. M. STOUFFER
Superintendent of Schools,
Wilmington, Delaware.

development of the educational program meant a revision of the program of studies. The number of pupils enrolled in each subject and each grade for fifteen years past was tabulated, and the predicted enrollment for the ten years 1935 to 1945 was forecast. On this basis, the rooms and facilities needed for each department was determined. The optimum enrollment in each class, ranging from 30 in the foods laboratory to 60 in physical education, influenced the plans. The philosophy of education in Wilmington, which employs departmentalized self-directed learning, also affected the educational specifications. An additional academic high school to accommodate 2,000 pupils was found to be needed. The discovery that the trades courses then offered covered only 15 per cent of local trades employment, revealed the need for greater trade-training facilities. It was felt that a polytechnic high school might be made by remodeling the old senior high, and that ultimately an additional senior high school would be required.

With the educational requirements and rough sketches placed before him, the architect proceeded to plan the building. How the plans passed back and forth between educator and architect has been related. The architect proved himself a master in preserving unusual beauty while achieving maximum utility. The colonial framework erected about a modern interior renders the structure truly a meeting ground of the old and the new. In its classic simplicity much of the hospitality of the eighteenth century has been recaptured. Each room has been designed and equipped for a specific purpose. The individuality of each room gives the building its whole character, fitting it for the business of preparing children for happy, successful, and purposeful life in a democracy. Every advanced educational feature which it was felt would contribute to this aim was incorporated. The character of the site, the structure itself, the rooms for each department, facilities for each unit, the location of each room or unit, the amount and nature of equipment, and the coordination of parts — all have been determined with reference to the educational program.



FLOOR PLANS, PIERRE S. DU PONT HIGH SCHOOL, WILMINGTON, DELAWARE
E. William Martin, Architect, Wilmington, Delaware.

The Laboratory Rooms

The science laboratories, which are arranged in pairs where possible, are more than 50 per cent larger than the typical classrooms. Each laboratory, including four for biology, two for physics, and one for chemistry, has a storage room and an instructor's room attached, con-

(Continued on Page 78)

GENERAL EXTERIOR VIEW, KENWOOD SCHOOL, KEARNEY, NEBRASKA
Hugh M. McClure, Architect, Kearney, Nebraska.

The Kenwood *Elementary* School

Hugh M. McClure, Architect

This elementary-school building serves the school needs of one ward of a growing small city. It houses the grades from kindergarten to sixth, inclusive.

Due to its distance from the center of the city, and because of the fact that this ward school district is separated from the central part of town and the central campus school plant by both the Lincoln Highway and a transcontinental railroad, it was thought advisable to design the kindergarten room for dual use, to supply the school community need for a meeting place.

The separate building itself was justified from the standpoint of safety for the children of this area, since the traffic dangers in crossing the railroad tracks and the highway are very real.

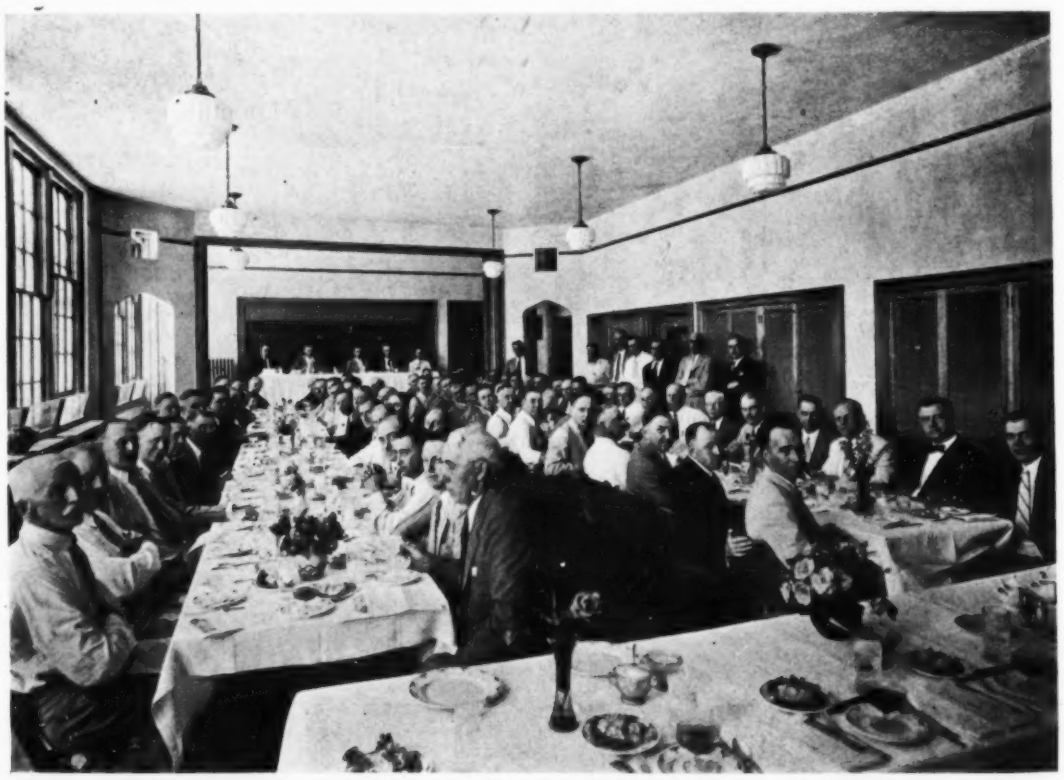
The building, which is illustrated with these photographs and drawings, was designed in close co-operation between the superintendent, Mr. Harry A. Burke, and the architect. In establishing the building budget the board of education deserves commendation for approving the recommendation to them to allow for quality construction and complete appointments in a small, compact, and firesafe building; rather than to "skeletonize," reduce quality and completeness — and build a bigger building.

The amount of the building budget was established following the preparation of accurate cost estimates of the building which was needed. The *first* consideration was to fulfill the existing need. Following this came a study of costs from all angles, including the life of buildings of the various types of construction, maintenance costs, etc.

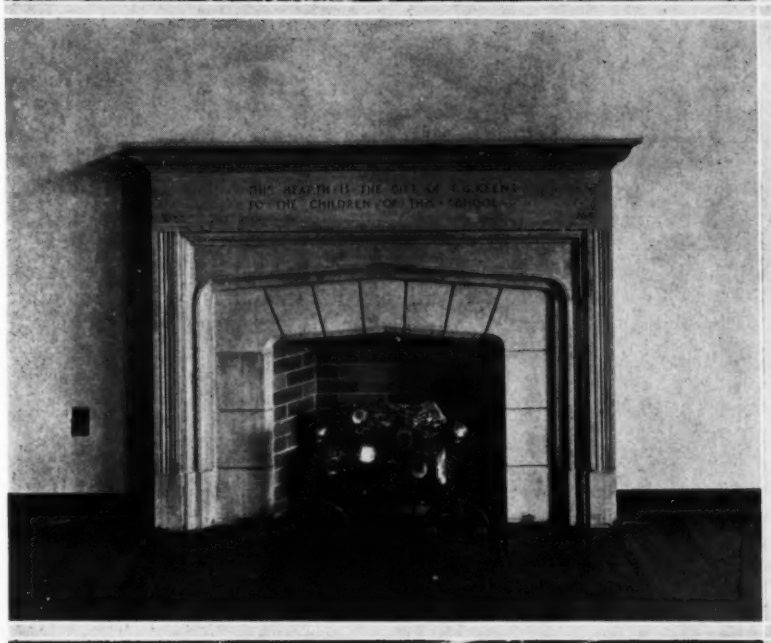
The building is "Class A," with reinforced-concrete frame, and reinforced-concrete rib joist and slab door and roof construction. The roof slab is insulated. The roof drains are internal, connecting with deep sumps and overflows at the street curb.

The established building budget, permitted the inclusion of an electric clock and signal system, radio reception and distribution to the classrooms, steel wardrobe lockers, extensive classroom storage cases, generous tack-board area, a well-equipped administration office, a teachers' rest room, a library, and other above-average features.

The heating plant is an automatic stoker-fired vapor-vacuum installation, including wall-hung radiation and automatically operated zone control. The ventilating system consists of window baffles, and dampered exhaust ducts from each room, directly connected with turbine type ventilators on the roof.



A LUNCHEON SERVED BY KENWOOD P. T. A. TO THE LOCAL CHAMBER OF COMMERCE
IN THE KINDERGARTEN-COMMUNITY ROOM



THE KENWOOD SCHOOL BUILDING, KEARNEY, NEBRASKA
Hugh M. McClure, Architect, Kearney, Nebraska.

Top, left: A view on the first floor, showing the rib joist reinforced concrete floor construction. The roof is similarly constructed. Joint spacing is 35½ inches.

Top, right: Looking down stairway. Glazed brick wainscot throughout corridors of buildings. Terrazzo floors in corridors and on stairs. All stairs coved. The usual waste space which is found at the turn from the corridor toward the stairway has, under the arrangement shown, been transferred beyond the stair landing and is used as toilet room space. The landing window, placed at the side of the stair landing, gives excellent lighting, since the persons traveling the stair are not moving directly toward or from the source of light, which situation has a partially blinding effect. Nonslip bronze nosings are used for safety on all the stairs.

Center, left: The stone mantel and fireplace was a gift of Francis G. Keens, a pioneer citizen. The mantel is cut stone and the hearth quarry tile. The gas log is vented to the outside through a chimney stack.

Center, right: Entrance corridor and vestibule. Educational display cases accessible from the rear. Floor, terrazzo. The deep classroom door alcoves in the building, the stair wells, the front entrance, all afford sound-trapping. There are no reverberations in the corridors. The locker doors are all rubber stopped as a further means of sound-deadening.

Lower, left: Boiler room with coal bunkers beyond workbench at left. Sidewalk lighting above the stoker. The total radiation carried by the boiler is 3,600 feet. The boiler and the leads and returns are all designed to carry radiation for two future wings of the building.

Lower, right: Detail of stage in kindergarten-community room. This room is finished in light natural oak. It is planned later to finish the walls in a flat oil paint under a planned maintenance budget. Each of the boxes for folding chairs is mounted on rollers and holds 14 chairs. The carriers are swiveled and easily handled by children.

THE KENWOOD SCHOOL BUILDING, KEARNEY, NEBRASKA

Left: A view into the kindergarten-community room showing typical corridor with lockers. The ceiling of the corridor is hung 10 feet above the floor, while the classrooms have 12-foot ceilings.

Right: Kindergarten-community room. Separate exit door to playground in foreground is protected with small marquise. Stage connected with corridor behind. Drapes in small openings at sides will be installed.

In designing the building, the thought was constantly kept in mind that the problem was to include the greatest number of aids toward safety, health, and effective teaching that it would be possible to include keeping the cost within a sensibly conservative budget total.

A contemplated gymnasium was eliminated in favor of fireproof construction, since both were not possible. Bearing on this decision are the facts that the kindergarten operates in the forenoon only, and is available, if necessary, as a playroom in the afternoon. Weather conditions in this locality permit year-round out-of-door play without serious interruption, since inclement weather is exceptional.

The building is designed for a future four-classroom addition at either end, or for a classroom addition at one end, and a gymnasium at the other.

Every effort was made to reduce cubage, adhering to the belief that the lowest possib'e *total* cost and the lowest possible *cost per pupil* is a much more important end to attain than a low cost *per cubic foot*. Careful observations and investigations indicate that an exceptionally low cost per cubic foot is all too often accomplished through uneconomical planning, including in the building disproportionate waste space.

The compact arrangement of the stairway and toilet-room areas, and the use of wardrobe lockers and recessed cupboard storage generally throughout the building, rather than wardrobe rooms and storerooms, resulted in greatly reducing the cubage, and therefore *increasing* the cost per cubic foot. *But it materially lowered the total cost, and the cost per pupil.*

The total construction cost of the building, including the automatic coal stoker equipment, all built-in and all fixed equipment, and the sidewalks, was $63,100. This does not include the architect's fee.

The building contains 208,610 cubic feet, which indicates a construction cost of slightly less than 30¼ cents per cubic foot.

The student capacity of the building is 310. This is based upon 15 square feet or more of floor area and 200 cubic feet of air volume per pupil in the classrooms, and 20 square feet of floor area and more than 230 cubic feet of air volume per pupil in the kindergarten room; and it excludes from the student capacity cal-

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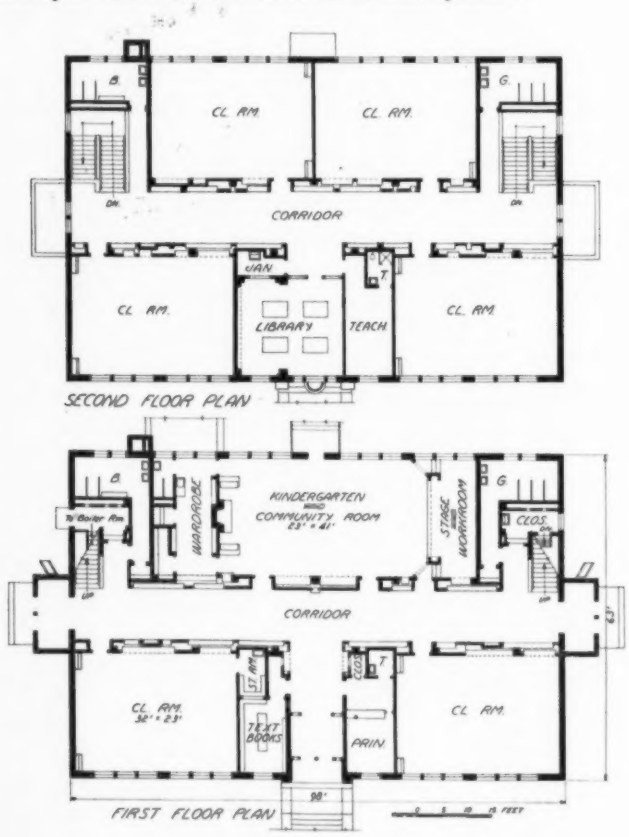


FLOOR PLANS, KENWOOD SCHOOL BUILDING, KEARNEY, NEBRASKA
Hugh M. McClure, Architect, Kearney, Nebraska.

REAR VIEW OF THE KENWOOD SCHOOL, KEARNEY, NEBRASKA, SHOWING GRADING UNDER WAY
The old building formerly stood in the center of the block and obviated the use of the playground as a single unit.

A TYPICAL CLASSROOM IN THE KENWOOD SCHOOL, KEARNEY, NEBRASKA
Built-in shelving in all the classrooms is provided at the front and the back of the rooms to serve as auxiliary storage for the pupils' work, classroom library, etc. Ample tackboard is provided on the corridor side of the classroom and above all blackboards. The map and chart case under the chalk rail permits the storage of all maps in the room and affords additional space for storing large cardboard mounts with work.

GENERAL EXTERIOR VIEW, PUBLIC SCHOOL, NORRIS, TENNESSEE
Planned and Erected under the Supervision of Division of Land Planning and Housing, Tennessee Valley Authority. Charles I. Barber, Architect.

A Modern TVA *Electrically Heated* School Building at Norris, Tennessee

Ruth Peck McLeod

The town of Norris, Tennessee, grew up overnight with the establishment of Norris Dam. The problem of housing harmoniously under one roof the elementary- and high-school pupils was no easy one for Mr. Earl S. Draper, director of all TVA land planning and housing (located at Knoxville, Tennessee.) He was assisted by Mr. Chas. I. Barber, chief of the architectural section, in drawing up the final plans for this modern, efficient school building.

The location of the school in the town center made it necessary to keep in mind the other buildings planned, which reflect early American architecture. Simplicity is the keynote of the structure. Fortunately the school was made to fit in with the mountainous landscape. It is built on a terraced slope, which not only adds to the architectural beauty but to the safety as well, as it provides direct exits out of doors from both floors.

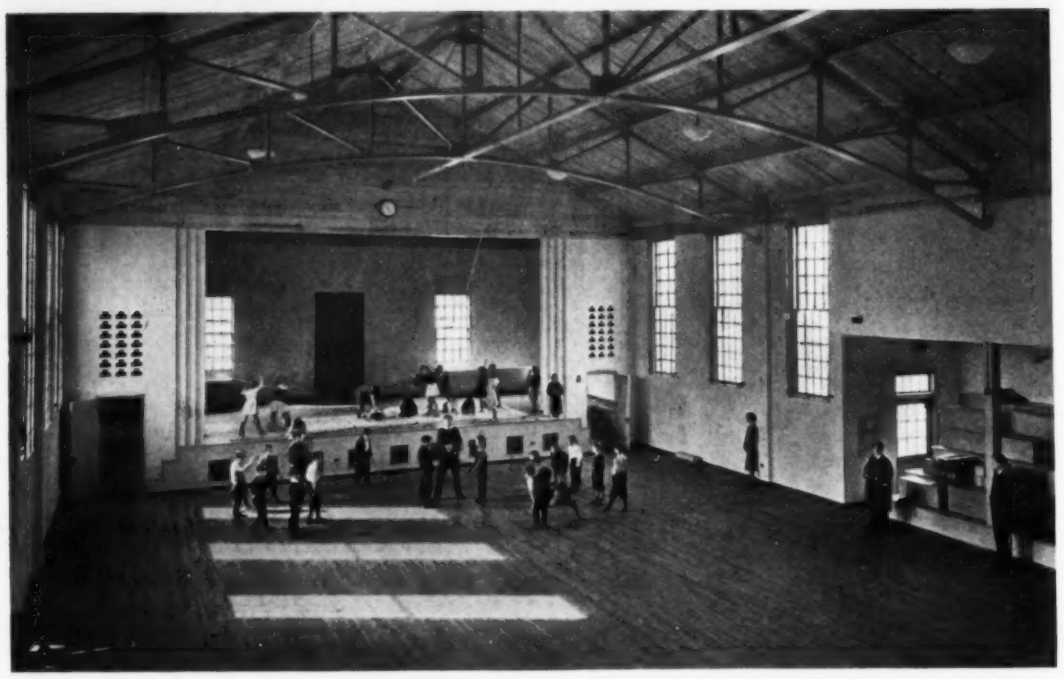
The simplicity of construction appeals to the practical mind; the walls consist of bricks within and without; and paint is applied directly to the interior brick walls. Director Earl Draper, in commenting on the building of the school, said: "The wall construction including all interior partitions is of brick. The first-story floor construction consists of waterproofed concrete slabs resting on tamped earth and finished with wooden floors in the rooms. Second-story floors are of slow-burning construction, with wooden joists protected by metal lath and plaster. Critical points, such as the transformer room, etc., have ceiling slabs of reinforced concrete. Except for ceilings, no plaster is used on interior surfaces; the exposed walls are finished by painting directly upon the brickwork. Roof trusses are of steel and the roofs are of sheet metal, painted to harmonize with the surroundings.

"The school building is 250 feet wide and has an extreme depth of more than 100 feet. Provision has been made for 200 high-school students, including the seventh and eighth grades, in seven classrooms, with 225 elementary-school pupils in six classrooms, and 45 children in the kindergarten. These figures are based upon the requirements for a population of 350 families in the town of Norris."

The spacious gymnasium-auditorium provides a seating capacity of 530. The chairs can be stored in a space beneath the stadium (which seats 400) leaving the floor free for gymnastics.

FIRST AND SECOND FLOOR PLANS, PUBLIC SCHOOL, NORRIS, TENNESSEE
Charles I. Barber, Architect.

A CORNER OF ONE OF THE CLASSROOMS IN THE PUBLIC SCHOOL, NORRIS, TENNESSEE



GYMNASIUM AND AUDITORIUM IN THE PUBLIC SCHOOL, NORRIS, TENNESSEE
Dimensions, 47 by 80 feet; capacity, 650 seats.

This combined gymnasium and public meeting hall might be said to separate as well as to connect the elementary- and high-school departments. Doors lead into it from either of the halls. For the sake of safety there are also direct outside exits from the auditorium and the stage as well. There is a fireproof projection booth for showing talking pictures. With such an admirable meeting place is it any wonder that the fathers as well as the mothers come to the parent-teacher meetings which are held at night! Lectures, class plays, and school entertainments are always well attended in this comfortable auditorium.

The athletic field and playground are directly behind the gymnasium. The shower rooms can be entered from the playground, from the gymnasium, or from the corridors. This playfield is also planned as a community playground. The recreational leader is an all-year employee and is in charge of the activities during the summer. A special space which is reserved for the kindergarten groups is located just behind the nursery school.

On the first floor a music room, a little larger than the average classroom, equipped with a stage, provides a place for small groups to sing or to dramatize historical happenings, stories, poems, etc. This room also has a dressing room providing space for chair storage.

The kindergarten is a spacious, most attractive, well-lighted room (having windows on three sides) with bright-colored flowers growing in window boxes, colorful draperies, and a fireplace to add cheer to the place. This room has a drinking fountain and a sink, and is equipped with collapsible cots for relaxation, tables for lunch, and toy equipment for the play periods. This nursery school and the primary grade have adjoining facilities and cloak closets. For the other elementary grades there are adjacent cloakrooms, but the special toilets are located down the hall. The high-school section has toilets separate from the lower grades.

The library is large. It serves also a study hall, thus the pupils' reading and preparation of their lessons are not confined to the covers of one book. (The use of any one textbook at this school is discouraged.) Numerous magazines and newspapers at the disposal of the boys and girls encourage them to keep informed on what is happening in the world today. A small room adjoining the library, and opening into it, makes

(Concluded on Page 64)

GENERAL VIEW OF PART OF THE TVA TOWN OF NORRIS, TENNESSEE, WITH THE PUBLIC SCHOOL IN CENTER
THE BUILDING COST APPROXIMATELY $140,000 OR 21 CENTS PER CUBIC FOOT

GENERAL EXTERIOR VIEW, CENTRAL SCHOOL, VAN HORNESVILLE, NEW YORK
Ernest Sibley, Architect, Litchfield, Connecticut.

A *Modern Version* of a Rural School

Ernest Sibley, A.I.A., Architect

If the writer were asked to describe his conception of a model rural school, a thing of the imagination free from the limitations of restricted appropriations and other forms of resistance, he could do no better than to relate the story of the Van Hornesville Central School, thereby offering a practical rather than an imaginary illustration. The Van Hornesville Central School Group provides quite ideal material advantages, and contemplates the widest opportunities for the school constituency of any rural school within my knowledge.

When the little old red schoolhouse was destroyed by fire in 1925, Mr. Owen D. Young, who was born in a farmhouse overlooking the village and who still maintains his favorite home on its main street, offered to replace it with a modern structure, it was my privilege to plan it.

Many of the phrases which I shall write into this article are taken from Mr. Young's writings concerning the school plant, for the reason that no one else can describe as he does the inception of this educational project, its evolution and its objectives.

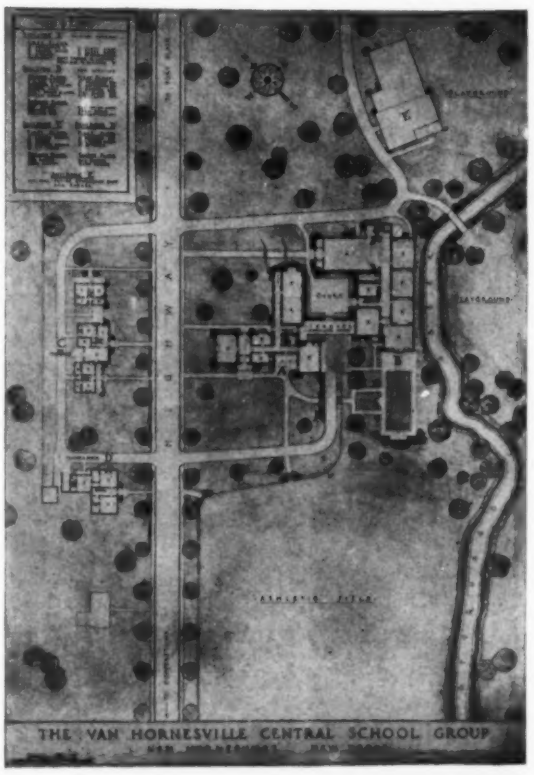
Van Hornesville is a small hamlet lying some twelve miles south of the Mohawk Valley. It is the center of a rather isolated farming district and this new school is a centralized one, drawing its pupils from about 22 districts scattered over the surrounding hills, each of which had its own little one-room school.

The school population of Van Hornesville at the time the project was launched numbered 20 children. The building was planned to accommodate about 100.

It was made known that any of the children from the adjoining districts who desired to come to the new school might do so as long as there was room to take care of them. By the end of the second year something like 250 children had taken the proposal literally, and it was necessary to dismantle the library, use the special rooms for classes, and appropriate every other available foot of space to accommodate the children who offered themselves.

It was decided that such a demonstration of interest and desire for a central school for the district, warranted the construction of one large enough to take care of the whole area.

Such provision was made and today the enrollment is about 500 pupils, ranging all the way from the first grade through the high school. The children are brought in by busses, some of them as far as ten miles, but in the remote districts four or five one-room schools are still kept open, to take care of the children up to the fourth and fifth grades. That merely saves hauling of very small children over long distances. These schools, however, are operated by the central school, teachers are selected, and they are considered merely as early grade rooms of the central school.



You will see from the layout that the buildings are a matter of growth and not of original planning. We erected the first building and then an addition at least three times as large. There now are 20 teachers, about the number in the combined districts before consolidation.

Inasmuch as Van Hornesville afforded no adequate living quarters for such an influx of teachers, and because such as existed were unsatisfactory, it was difficult to secure and retain teachers of the highest type.

Consequently, across from the school, and architecturally similar, a teacherage was erected. The central part of this house is for the principal and has no interior access to the wings on either side. Each wing has accommodations for four teachers, two sitting rooms, and two kitchens downstairs, and bedrooms and baths upstairs. This enables the teachers to get their own meals or have someone come in and get them for them. There is no such thing as a common dining room. The teachers' quarters, therefore, are separate and private. They are artistically furnished throughout, altogether comfortable, and homelike.

The stones for the walls of the original building were hauled in from the old stone "fences" which separated the Van Horne and neighboring farms, and they were split to reveal their innate beauty of color and texture.

All workmen on this building were local, worthy successors of the craftsmen of an earlier day. The youngest skilled workman on the job was 67, the oldest 83. It was "their" building, and they took directions reluctantly from the architect who "only drew the picture."

The initial building as planned provided two classrooms, a boy's workshop, a girl's workroom,

THE ORIGINAL UNIT OF THE VAN HORNESVILLE CENTRAL SCHOOL, VAN HORNESVILLE, NEW YORK
Ernest Sibley, Architect, Litchfield, Connecticut.

a school and community library, and a principal's office. Folding partitions between the classrooms afforded an assembly-and-community room, and a fully equipped projection room for motion pictures adjoins.

With the completion of the enlarged structure and program, the library and principal's office serve their original purpose. The two classrooms are devoted to the needs of the smaller children, the girl's workroom has become the school office, and the boy's workshop a recitation room for older pupils. The projection room is the connecting corridor to the "addition."

Obstacles were encountered when the addition was planned which would not have been present if a building of such capacity had been originally contemplated.

We were allowed no choice of location as the extension was to be an integral part of the first unit. The available plot was too restricted for the demands which were to be made upon it, hard pressed as it was on the east by the creek and bordered on the north by a public road, and over and above all, the demand made upon the architect by the donor of the buildings, that the addition should be subservient to the original building, that it must be designed so that the initial structure would remain the main feature of the school group.

Van Hornesville was fortunate in that its school buildings and teacherage were presented to the district completely furnished and equipped, but any average school district can afford to begin the development of a school plant offering similar advantages. This has been proved by facts and figures on other completed structures.

A two- or three-classroom building may form the first unit of a comprehensive school-building program, and it can be designed so as to be well balanced and architecturally beautiful at all stages of its growth.

To provide the additional facilities required, and in order to cope successfully with the controlling factors previously mentioned, it was necessary to plan the addition with three levels, and to locate it well back of the front line of the building already completed.

Along the steep bank of the creek, entirely above grade, is the ground floor. On it are located double classrooms connecting with kitchen, for cafeteria. The mechanical drawing and shopwork are also carried on here; the showers and lockers are on this level, and there is an arcade approach to the outdoor swimming pool which is below the level of the ground floor.

In referring to the cafeteria, I am reminded that when the small building became overcrowded, the boiler room, which has large windows and is above grade, was glorified by means of screens and gaily painted tables and chairs and used as a lunchroom. Here hot, nourishing soups and cocoa were dispensed to accompany the food which the children brought from their homes.

The first floor of the addition is approximately on a level with the floor of the original building. On it is the assembly room, used not only for assembly but for visual instruction, music, physical training and instruction, and dramatization of English. This floor also provides four standard classrooms, and the laboratory which has been dedicated to Madame Curie, following her visit to the building in 1929.

Cooking, sewing, art, and recitation rooms are

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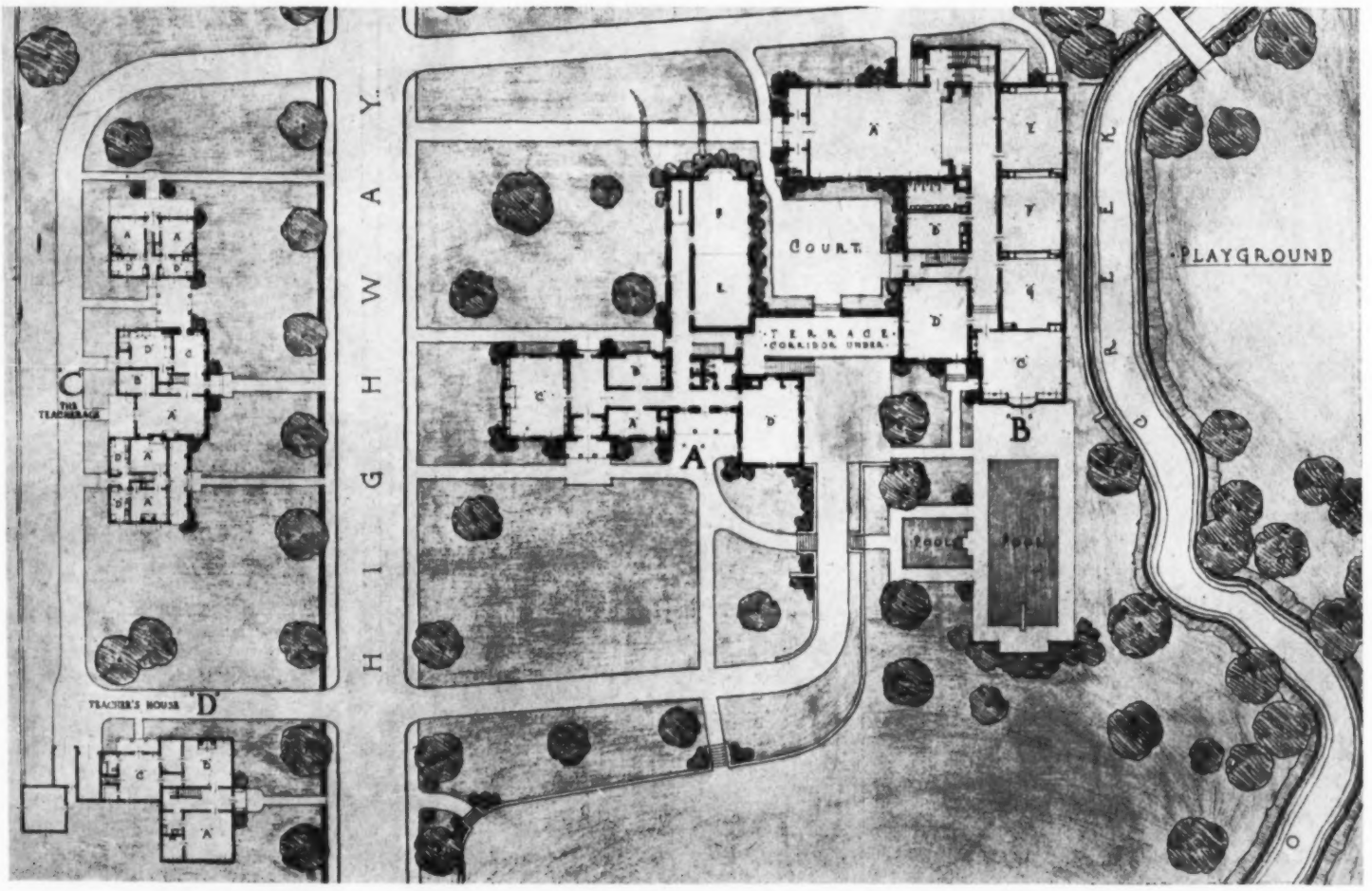
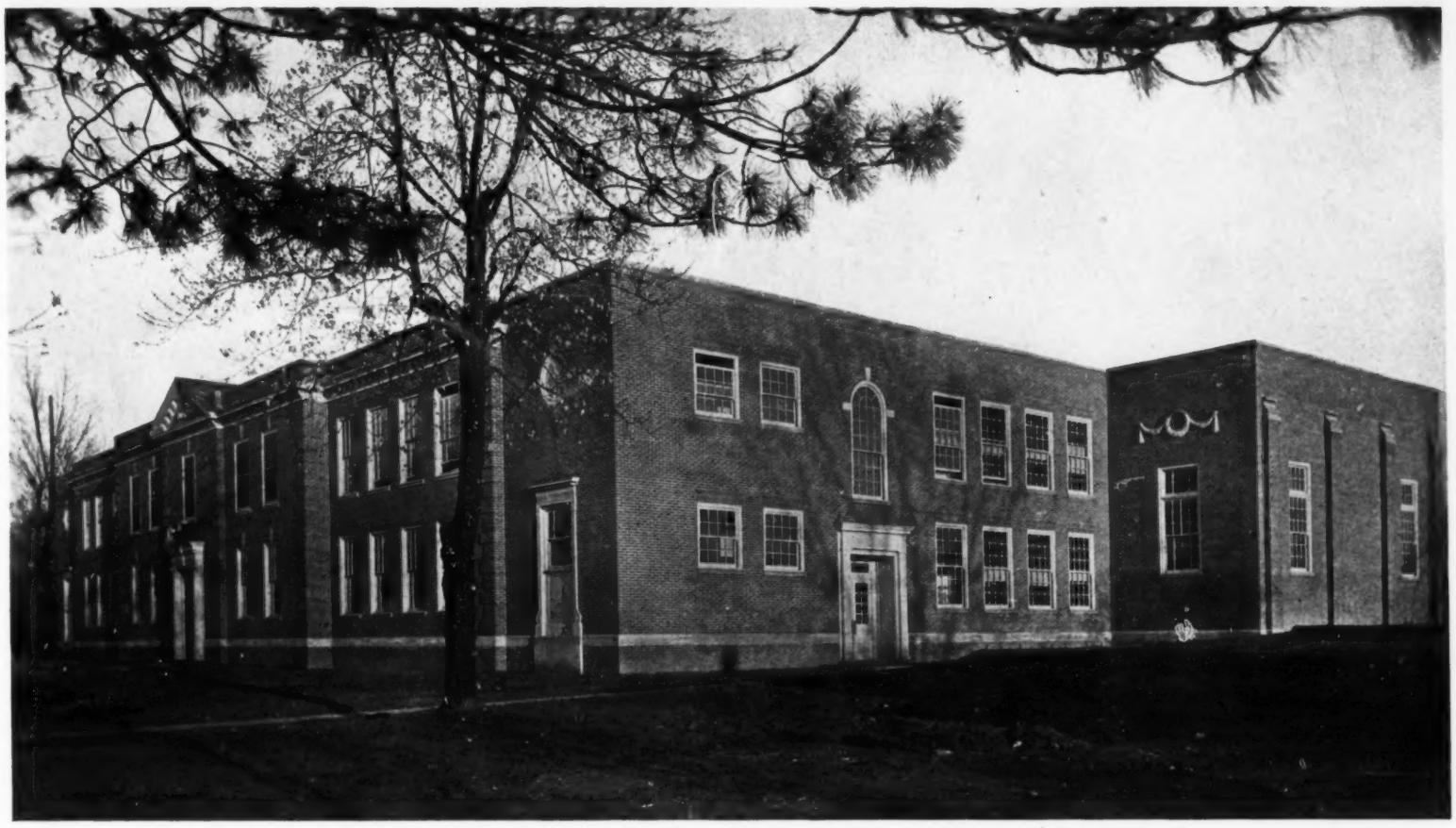


FLOOR PLAN AND PARTIAL PLOT PLAN OF THE VAN HORNESVILLE CENTRAL SCHOOL GROUP AT VAN HORNESVILLE, NEW YORK
Ernest Sibley and Lawrence C. Licht, Architects.

Building A is the original school and contains the following rooms: (A) Principal's office; (B) School office; (C) Library; (D-E) Classrooms; (F) Kindergarten.
Building B is the new addition. It includes: (A) Assembly room; (B) Recitation room; (C) Science laboratory; (D-E-F-G-) Classrooms. The plan does not show the art, sewing, cooking, and recitation rooms on the second floor, nor the cafeteria, manual-arts room, and two classrooms, as well as service rooms on the ground floor below.
Building C is the teacherage, and includes: (A) Living room; (B) Study; (C) Dining room; (D) Kitchen.
Building D is the main teachers' home, and includes: (A) Office for the doctor; (B) Living room; (C) Kitchen.
Building E, which is shown in the general plot plan on Page 43 is the old mill which will be used for gymnasium, shops, and garage.



GENERAL EXTERIOR VIEW, ARLINGTON ELEMENTARY SCHOOL, LEXINGTON, KENTUCKY
Frankel & Curtis, Architects, Lexington, Kentucky.

Up and *Down* with PWA at Lexington, Kentucky

Henry H. Hill*

During the 1934 session of the Department of Superintendence at Cleveland and again during the 1935 session at Atlantic City, considerable time was devoted to a discussion of the Public Works Administration and school buildings. Complaints were voiced that PWA projects cost too much, even with the 30 per cent grant, that architects could not or would not draw plans on the chance of a PWA loan and grant, that sites could not be obtained or buildings planned satisfactorily under high pressure, and that bonds could not be voted before PWA appropriations were exhausted.

In view of such opinions and with the present possibility that public-works programs will continue for some years in the future, a brief narrative of what has happened in Lexington, a city of 45,000, may be of interest. Each city is a case to itself, each with its own needs and circumstances, but every city needs a long-time building program to provide adequate educational opportunities, and, in the opinion of the writer, the possibilities of PWA or any subsequent agency of similar character, as a help toward effecting these plans, cannot be judiciously overlooked.

The board of education of Lexington determined early in the summer of 1933 to apply for a loan and grant from PWA with which to carry out part of a building program recommended by a building survey conducted by the Bureau of School Service of the University of Kentucky in 1929. Some of the necessary land had already been secured, the projects had been seasoned and matured over a period of four years, and the school corporation was in excellent financial condition. Architects were secured who agreed to draw plans without compensation unless the loan and grant was received.

Ninety-day options were obtained on additional land needed for the seven projects which were selected. A bond issue of $350,000 was carried by a 5 to 1 vote in November, 1933, and after serious legal difficulties work was begun early in June, 1934. At this date the seven buildings have been completed and occupied, and the program is entirely complete except for final grant check. The final grant allotment was for $142,000 and with some extra building costs and equipment, the amount of money expended has exceeded $500,000.

The seven projects selected represent, in the main, replacement of obsolete buildings and additions to present ones, only one project being an additional school center. This plan was followed to guard against heavy additional operating charges which might endanger the success of the program.

The seven projects and their approximate costs are:

1. A two-room addition to an elementary school, one replacing an old open-air room, the other for additional space. Cost, $13,000.
2. An auditorium-gymnasium for an elementary school. Cost, $23,000.
3. An auditorium-gymnasium and four additional rooms for an elementary school. Cost, $35,000.

LIBRARY, HENRY CLAY HIGH SCHOOL ADDITION, LEXINGTON, KENTUCKY
Warner & Mitchell, Architects, Cleveland, Ohio. John F. Wilson, Associates, Lexington, Kentucky.

*Superintendent of Schools, Lexington, Kentucky.

BOTANY ROOM, HENRY CLAY HIGH SCHOOL ADDITION, LEXINGTON, KENTUCKY
Warner & Mitchell, Architects, Cleveland, Ohio. John F. Wilson, Associate, Lexington, Kentucky.

STUDY HALL, HENRY CLAY HIGH SCHOOL ADDITION, LEXINGTON, KENTUCKY
Warner & Mitchell, Architects, Cleveland, Ohio. John F. Wilson, Associate, Lexington, Kentucky.

4. A ten-room addition, an auditorium-gymnasium, a cafeteria, and other modern facilities replacing an old wing of an elementary school. Cost, $100,000.

5. A ten-room elementary school replacing the city's worst building. Cost, $85,000.

6. An addition to the senior-high-school building, providing better and larger laboratories, study hall, library quarters, manual-training shops, and so on. Cost, $112,000.

7. The first seven-room unit of a new elementary-school center. Cost, $75,000.

The purchase of land and equipment and the necessary overhead were added to the above expenditures.

In addition to legal difficulties encountered — not, however, due to PWA — and the ever-present problem of obtaining additional land at reasonable prices, the necessity of checking carefully the plans of architects who were themselves working under pressure, proved arduous. To assist in this problem, a specialist in school buildings, a member of the state university faculty, was employed to criticize all plans with the superintendent. The cost of PWA projects, particularly during the time of rapidly rising prices in the construction field, added somewhat to ordinary difficulties, necessitating some reduction in the original scope of the work and readvertising of bids in two instances. Despite this difficulty, all the projects originally planned were carried through without any serious impairment. Five of the buildings are of fire-resistive construction, one is of slow-burning construction, and one is ordinary wood-joist construction. The last-named addition is the only apparent mistake — there is so little difference in cost locally in ordinary wood-joist and steel and concrete construction that fire-resistive construction could have been used.

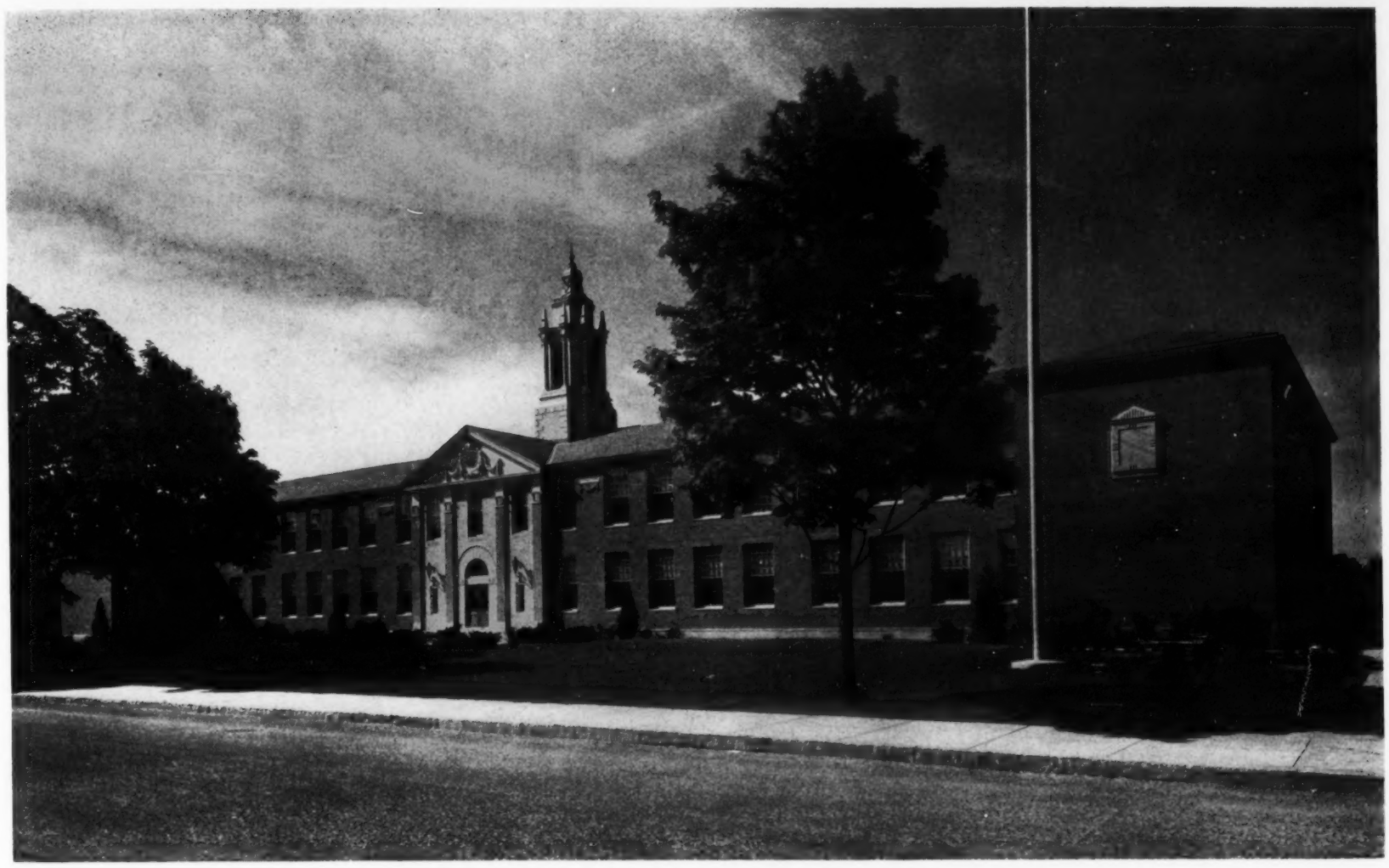
Relations with PWA officials, including the resident PWA engineer, have been more than pleasant. Once construction was stopped until some unintentional violations of PWA rules could be corrected, but the delay was not serious. PWA in the opinion of the writer, will meet halfway any public corporation which genuinely seeks to carry out the rules and regulations in force. PWA inspection has been invaluable in securing high-class work.

PWA wage scales are higher than those ordinarily paid in Lexington, which is primarily an open-shop city, but the wages have gone to local taxpayers, the patrons of Lexington schools, and there is no doubt the city has benefited by the local PWA program which included $1,800,000 in sewer construction and other public buildings.

The benefits to the children are incalculable. The seven projects touch nearly half of the 8,000 school children enrolled, and provide a

(Continued on Page 76)

LEFT: PRE-TUBERCULAR OPEN-AIR ROOM, LINCOLN SCHOOL, LEXINGTON, KENTUCKY. Churchill & Gillig, Architects, Lexington, Kentucky.
RIGHT: TYPICAL CLASSROOM, CASSIDY SCHOOL, LEXINGTON, KENTUCKY. Whayne W. Haffler, Architect, Lexington, Kentucky. Warner & Mitchell, Associates, Cleveland, Ohio.

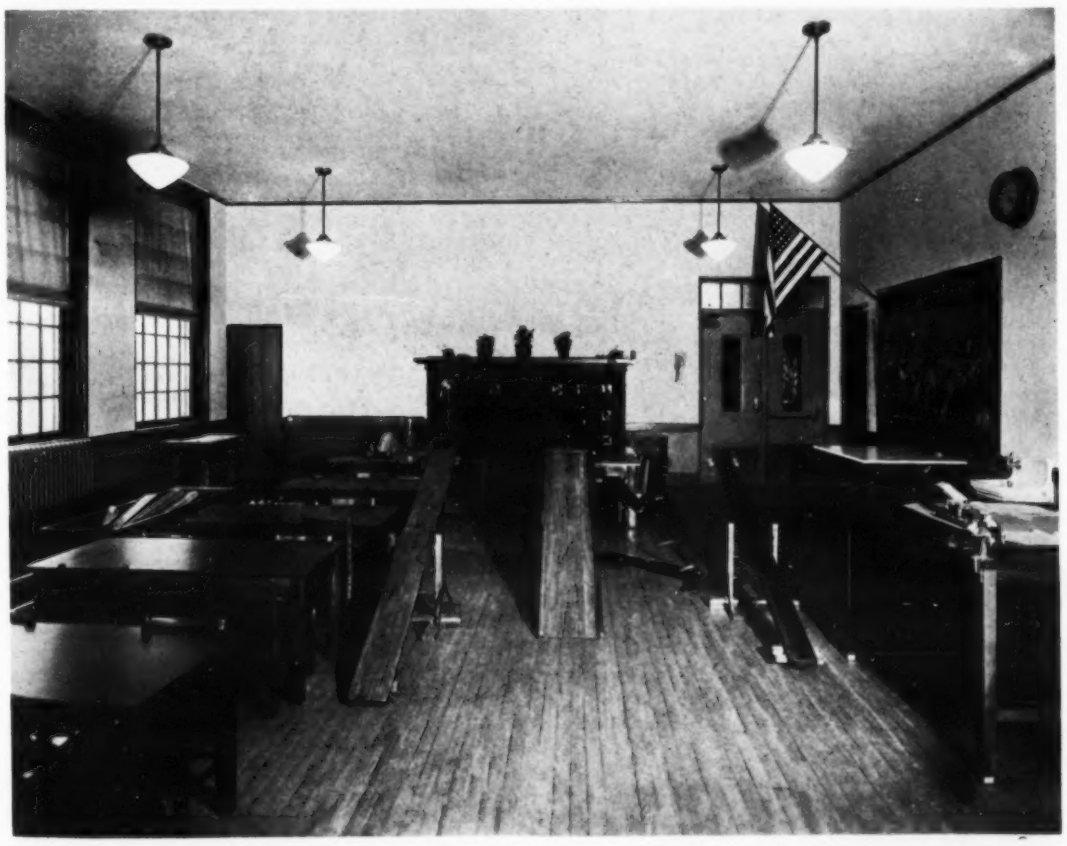


GENERAL EXTERIOR VIEW, FRANK F. CARR SCHOOL, NEWTON, MASSACHUSETTS
Ralph Coolidge Henry, Architect, Boston, Massachusetts.

The Carr School, Newton, Massachusetts

The city of Newton, Mass., has for many years enjoyed an enviable reputation for the quality and scope of its educational program. It has developed numerous innovations in organization, curriculum, and teaching methods, as well as in administrative procedures. Its superintendents of schools have been outstanding leaders, and the quality of its program has been in harmony with the high-grade residential character of the community.

In carrying on the school program, the school committee as well as the executive officials of the school department have held to the theory that high quality in a school system requires a carefully developed school plant as an aid in the instructional process. The new Carr school, opened in September, 1935, has been planned and constructed in line with this idea. The building, which serves a conservative residential neighborhood, is a worthy adaptation of the Georgian style, and the high quality of materials add to the dignity and effectiveness of the fine lines of the structure. The building serves an elementary school, including a kindergarten and six grades. Grades four, five, and six are organized on the departmental basis, and the full program of physical education, music, art, and social studies, with numerous elements of a progressive-education type of work are offered.



A PRIMARY ROOM, FRANK F. CARR SCHOOL, NEWTON, MASSACHUSETTS, EQUIPPED FOR WORK, STUDY, AND PLAY

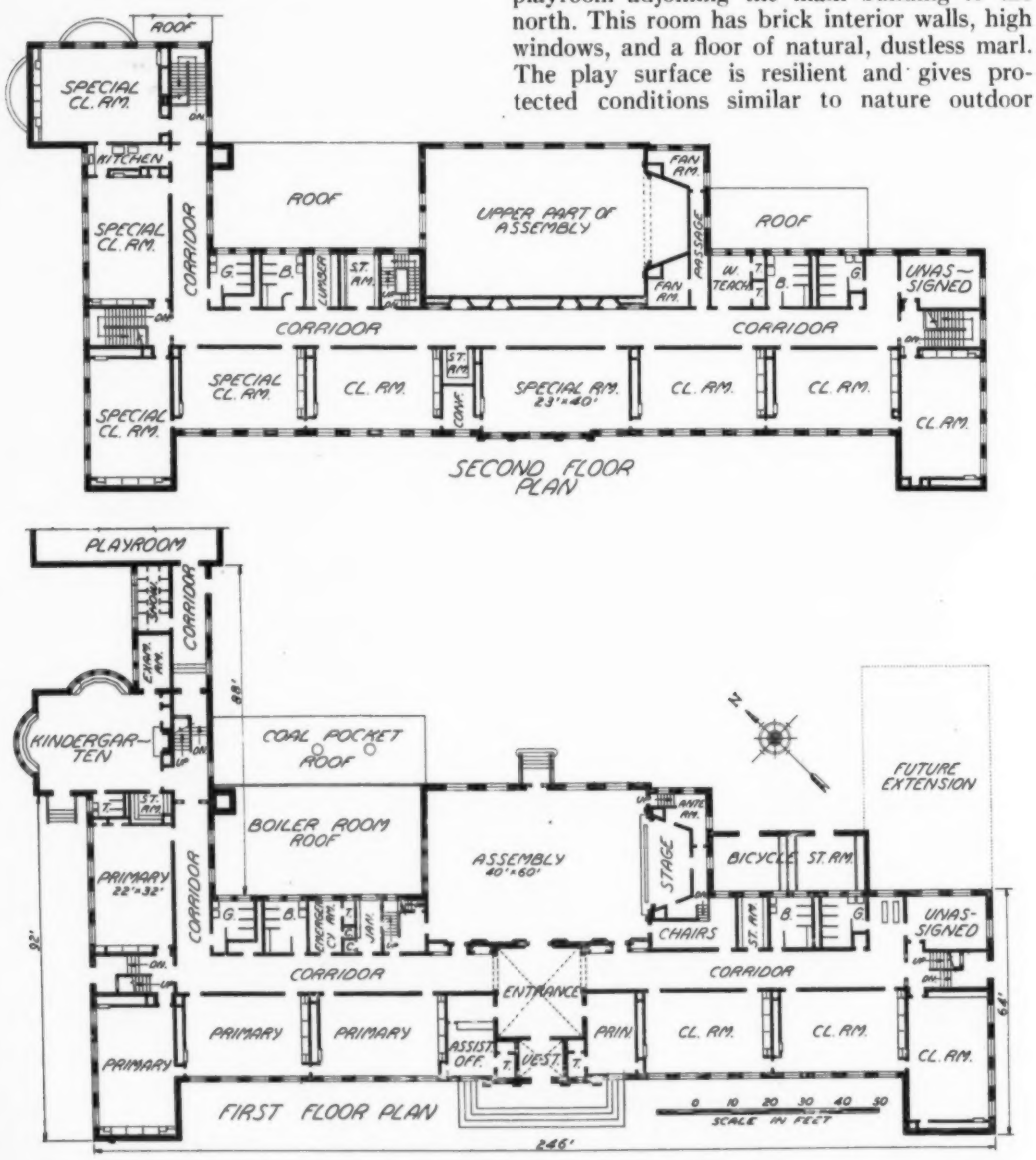
The building occupies a site with a frontage of 450 feet and a depth of 421 feet. It is located along the front and one side of the site so that the play area is unobstructed. The exterior is constructed of water-struck brick in varying shades of dark red and purple. The trim is natural limestone and granite. The roof is covered with heavy, nonfading Vermont slate, and the metalwork is copper and wrought iron. The construction throughout is of reinforced concrete, fireproofed steel, and brick. The corridors have floors of resilient, sound-absorbing asphalt tile, with wainscots of glazed tile, and plastered walls and ceilings. The classrooms are finished with linoleum floors, plastered walls, acoustical-tile ceilings, dust-resisting metal trim, and slate blackboards. Small lockers are provided for holding pupils' books and materials in the departmentalized grades. Clothing storage is provided in wooden wardrobes, fitted with individual sections. Storage cabinets, bookcases, and conveniences for handling teaching materials are provided.

A TYPICAL CLASSROOM IN THE FRANK F. CARR SCHOOL, SHOWING THE INFORMAL ARRANGEMENT OF FURNITURE

The building is heated with low-pressure steam, and the classrooms are fitted with unit ventilators and direct radiators. The assembly room has fans installed in separate fan rooms above the stage. Automatic temperature regulation is provided throughout.

The toilet rooms have glazed-enamel tile walls, tile floors, and plaster ceilings. Toilets, urinals, and washbowls are of chinaware, and the plumbing fixtures are of heavy-duty school type.

A novel feature of the building is the large playroom adjoining the main building to the north. This room has brick interior walls, high windows, and a floor of natural, dustless marl. The play surface is resilient and gives protected conditions similar to nature outdoor situations where the feet get a natural grip, and where a healthful development of foot bones and leg muscles is enhanced. The normal conditions of play in the open are approached to a remarkable degree when the weather does not permit of outdoor recreation. The room is in constant use in connection with the physical-education program.



FLOOR PLANS, FRANK F. CARR SCHOOL, NEWTON, MASSACHUSETTS
Ralph Coolidge Henry, Architect, Boston, Massachusetts.

The building was put under construction in July, 1934, and was occupied in September, 1935. The auditorium has a seating capacity of 400, and with a limited daily schedule of classes, has an ordinary capacity of 600. The cost was $275,000, and an additional $25,000 was spent for built-in equipment, movable seating, and permanent utilities. The cost per cubic foot was 44 cents.

The educational program for the building was developed by the school department, under the leadership of Mr. John Lunn, superintendent in 1932 and 1933, and the plans were prepared by Mr. Ralph Coolidge Henry, architect, of Boston, Mass.

NORTH CAROLINA BUILDING PROGRAM FINANCED BY PWA

Loans and grants totaling $7,764,457, received from the PWA during the last two years will make possible the construction of 335 school buildings in North Carolina when the present building program is completed, according to a recent report of Dr. Herman G. Baity, PWA director for the state department.

Dr. Baity pointed out in his report that since the PWA began making loans and grants in the summer of 1935, under the National Recovery Act, allotments had been made to more than 3,000 cities, towns, counties, school districts, and other public bodies for school, college, and library construction estimated at nearly $500,000,000.

A considerable part of the program, he showed, could not have been undertaken without the help of the PWA. North Carolina commissioners, through the county boards of education, erected and equipped a total of 140 schools, to the value of $3,355,000 under this program.

Under the emergency relief appropriation act of 1935, the state PWA has received 69 applications for school projects, with a total estimated cost of $10,722,000. Of these, there are 33 applications which have been approved, including 195 units for which the PWA has offered to furnish in loans and grants the sum of $4,409,457.

OHIO SCHOOL-BOND ISSUES

The disposition of school-bond issues and special levies submitted in Ohio school districts since January 1, 1935, to beginning of November, forms the subject of a report made by Prof. T. C. Holy, of the Ohio State University.

In presenting a summary of the bond issues submitted, it is stated at the outset that it required a 65-per-cent vote for passing. The number of school-bond issues submitted by counties was 194, out of which 113 carried and 81 failed. The total amount of bond issues submitted was $6,784,149, and those that failed, $3,835,260. The number of counties submitting bond issues was 70.

Special levies were submitted in 44 cities and 20 exempted villages. In 39 cities and 18 villages, the levies were carried which merely required a majority vote. The number of counties submitting special levies was 64. Thus, the total number of levies submitted was 273 out of which 211 carried and 61 failed.

Eighty-nine per cent of the special levies in cities and exempted villages carried this year, as compared with 67 per cent in 1934. In the county school districts, 77 per cent carried this year as compared with 65 per cent last year.

The Annat Bill passed in 1933 required only a majority vote on bonds issued for participation in the PWA. This bill was amended on June 7, 1935, to require a 65-per-cent vote. This change resulted in the defeat of school improvements totaling $16,082,600, of which amount $7,137,000 would have been furnished by the Federal Government from the Works Relief Appropriation. Ohio will still be required to pay its full share of this appropriation even though this allotment for school improvement is spent elsewhere.

♦ New York, N. Y. The board of education has ordered that construction work be started on the Industrial High School for Girls, to be erected in Bronx borough, at an estimated cost of $1,400,000. The building will be erected from plans prepared by Mr. W. C. Martin, architect of the board, and will be financed in part with a federal grant. It will contain 19 academic classrooms, in addition to a number of special rooms, a lunchroom, a gymnasium, and an auditorium, and will provide accommodations for 1,721 students.

Automatic Lighting and *Scholarship*

C. M. Layton[1]

Sometime in 1934 my attention was called to an experiment in schoolroom lighting, conducted during the school years 1930–31, 1931–32, 1932–33, at Tuscumbia, Alabama, and reported by F. C. Albert, a salesman for the Alabama Power Company. This report, in the form of a paper, read before the twenty-seventh annual convention of the Illuminating Engineering Society described an experiment in schoolroom lighting controlled by photo-cell relay. After studying the paper, I decided to make a similar experiment in my own school system.

Briefly stated the problem is this: If all other factors are equal, will pupils make more progress if at all times adequate lighting is maintained on the desks at which the pupils work? If the lights are automatically turned on in the room when natural light fails; if adequate light does not depend on the teacher's attention to it; and if every desk in the room has the minimum illumination recommended by lighting experts, will this standard condition be reflected in better scholarship? The board of education gave its approval and the Wooster Lions' Club offered to pay for the excess current consumed.

Setting Up the Experiment

At the opening of school, September 4, 1934, 64 pupils were enrolled in the Bowman Street School. Two teachers were assigned to the fourth grade, one with two years' normal training and eleven years' experience, the other with four years' training in the secondary field and fourteen hours in the elementary field, but without experience.

The pupils in the fourth grade were given the Henmon-Nelson Tests of Mental Ability, Form A, as a basis for judging into sections. They were then assigned in pairs of as nearly as possible equal IQ's so that one of each pair was in each section. After making the assignments, the median, the average deviation, the standard deviation, and the probable error were computed. Table 1 shows the range of intelligence quotients, the average deviation, the standard deviation, and the probable error of each group. The groups seemed to be quite evenly balanced, judging by these standards.

TABLE 1. Central Tendencies of the Two Sections

	Section A	*Section B*
Range of I.Q.	52–134	78–135
Median	101	103
Average Deviation	13.26	13.03
Standard Deviation ...	16.05	16.31
P. E.	11.12	10.32

Objective Tests

As soon as the sections were established, a battery of tests were given as part of the autumn objective testing program. All were given the Monroe Silent-Reading Test, Form I, Test 1, and the Woody-McCall Mixed Fundamentals in Arithmetic, Form I. The scores in these tests are shown in Table 2. They show a further mark of the balance between the two sections.

TABLE 2. Scores of the Two Groups in Achievement Tests in Reading and Arithmetic

	Section A	*Section B*	*Standard*
Reading comprehension	9.7	9.75	7.7
Reading rate	136.375	125.00	122.0
Arithmetic Fundamentals	13.6	13.25	13.1

The Physical Setup

The two sections were assigned to two adjoining rooms, similarly situated, and identical as to size, equipment, natural lighting, blackboard space, etc. One room was equipped with four totally indirect lighting fixtures, the two nearest the windows bearing a 200-watt lamp each, and the two nearest the blackboard bearing a 300-watt lamp each. A photo-cell relay was connected into the circuit, so adjusted that the lights were automatically switched on whenever the illumination became less than 12 foot-candles per square foot on the desks nearest the wall, and turned off whenever the illumination rose to 15 foot-candles. The circuit was also equipped with a manual switch, by which the teacher cut in the lights at the beginning of each session, and cut them out at the end of the session. The only difference in the two rooms was in the location of the door and light switch. This may be seen in the plans of the rooms.

The other room was lighted, like all other rooms of the building, with four 100-watt lamps, operated by a manual switch at the opposite end of the room from the teacher's desk. These lamps are installed in open-bottom glass reflectors. This room is referred to hereafter as Room A and the experimental room as Room B.

The experimental room consumed 828 kilowatt-hours, and the standard room 104 kilowatt-hours from October 3, 1934, to June 1, 1935. The cost of the extra current for the year was $42.72, or $1.335 per pupil.

The Teaching Results

The purpose of the experiment was to determine what effect, if any, would be produced in the progress and success of the pupils by adequate lighting at all times. In order to provide as nearly as possible identical teaching in each group, the work was departmentalized. The teachers changed rooms, but Section A always occupied the standard room, and Section B the experimental room.

The installation was completed October 3, 1934, and the first six-weeks' grade period ended October 12, so that the first four-weeks' work was done under identical conditions in the two groups. Table 3 is a showing of grades in arithmetic, reading, geography, and English at the end of each of the first five six-weeks' periods and the final grades at the end of the year. For purposes of comparison, only the number of grades below the passing mark of 70 per cent and the number of grades above 90 per cent are given. Table 3 shows that the experimental group started out with the greater number of grades below the 70 per cent mark and finished with the smaller number both in reading and arithmetic; and the same group started with the smaller number of grades above 90 per cent but finished with the greater number in both subjects. The results in geography and English are not so clearly marked, nor is the record as easily interpreted.

TABLE 3. Comparison of Grades in Arithmetic, Reading, Geography, and English

BELOW 70 PER CENT

	Reading Group		*Arithmetic Group*		*Geography Group*		*English Group*	
	A	*B*	*A*	*B*	*A*	*B*	*A*	*B*
1. Oct.	1	5	2	5	7	1	4	1
2. Nov.	2	3	6	3	6	3	3	3
3. Jan.	3	2	4	3	7	3	5	1
4. Mar.	2	1	5	2	11	4	2	0
5. Apr.	1	0	4	2	2	1	1	0
Final	1	0	5	3	7	1	3	0

90 PER CENT OR ABOVE

	Reading Group		*Arithmetic Group*		*Geography Group*		*English Group*	
	A	*B*	*A*	*B*	*A*	*B*	*A*	*B*
1. Oct.	6	9	9	8	11	16	8	11
2. Nov.	12	11	7	9	9	11	9	16
3. Jan.	12	17	7	11	0	14	8	9
4. Mar.	12	14	6	9	6	7	15	16
5. Apr.	12	16	7	11	13	13	12	15
Final	11	12	8	9	9	10	12	13

In May, objective tests were administered again, using Form II, Test 1, of the Monroe Reading Tests, and Form III of the Woody-McCall tests. Table 4 shows the scores and the gain made. Here the scores favor the experimental group in reading and the other group in arithmetic, although the teachers' grades favor the experimental group in both subjects. The Woody-McCall Scales test only mechanical computation in arithmetic, while the teacher's grades are for general work in arithmetic.

MR. W. G. ECKLES,
JACKSON, MISSISSIPPI

State Director of School Building Service for Mississippi, who was elected president of the National Council on Schoolhouse Construction during the convention at Washington, D. C., November 7, 1935.

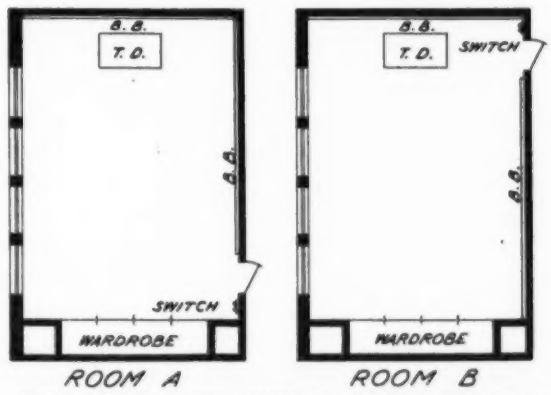
TABLE 4. Reading and Arithmetic Scores at End of the Year and Per Cent of Gain in Each

	Section A		*Section B*	
	Score	*Gain %*	*Score*	*Gain %*
Reading Rate...	132.5	—2.1	145.4	16.3
Reading Comprehension ...	10.5	8.5	11.8	21.0
Arithmetic	22.08	8.48	17.33	4.08

Summary and Conclusions

The teachers and the superintendent went into the experiment without any desire to prove any particular thesis, but rather with the attitude of letting the results determine whether more effective lighting would produce more effective results in scholarship.

The teachers felt after some six weeks of the experiment that Group B had received the more mentally alert children. They offered no explanation as to why, if this group were more mentally alert, their achievement in reading speed and comprehension, arithmetical computation, and their general intelligence did not show up higher in the preliminary tests.



FLOOR PLANS OF THE ROOMS IN WHICH EXPERIMENT WAS MADE

Both teachers testify that Group B is more responsive. They are also agreed that the greater disciplinary problem is in this group. The children in Group B are more mischievous.

(Concluded on Page 86)

[1]Superintendent of Schools, Wooster, Ohio.

THE AMERICAN
School Board Journal
EDITORS:
WM. GEO. BRUCE WM. C. BRUCE

Schoolhouse Construction and Federal Aid

THE offer extended by the Federal Government to afford aid in schoolhouse construction throughout the country had its beginning about the middle of the year 1934. Two huge appropriations were made by the National Congress, one amounting to $3,300,000,000 and a second amounting to $4,880,000,000, to be expended for public projects, nonfederal as well as federal.

These appropriations contemplated aid in the construction of schoolhousing wherever needed and wherever local conditions enabled compliance with the financial conditions exacted by the government. Under the first appropriation, a grant of 30 per cent was extended and under the second, a grant of 45 per cent. The government had to be assured on the ultimate payment of the 70 per cent in the first instance and of 55 per cent in the second.

It may be of interest to bring briefly into retrospect some of the experiences which were encountered and the results obtained. In other words, to learn to what extent the schools of the nation shared in the federal aid that was extended to them. The federal allotment of funds under the three-billion-dollar public works program for school projects totaled in volume of new construction, on November 1, 1935, the sum of $338,932,614. The allotment under the four-million-dollar works relief program, amounts at this time to $205,863,502. Counting the funds supplied by the local school authorities, the total of new school construction as a result of federal aid is estimated at $503,690,000.

In analyzing the present status, it develops that more than 15 per cent of the schoolhouse projects are completed, 40 per cent are under construction, and 55 per cent are ready for construction. The new school-construction program for 1936, based on the allotments already made, may conservatively be estimated at $250,000,000.

The foregoing would lead to the conclusion that the construction of new schoolhousing in the United States was brought back in 1935 to the normal basis with the assurance that the year 1936 will show a similar result. This would by no means indicate that all the schoolhousing shortage had been fully met.

While the Federal Government has extended its aid in a most liberal manner, it should be remembered that such aid is a temporary expediency only, and eventually all communities must come back to the self-help basis again. This means that the school authorities must contemplate the future schoolhouse needs in the light of a growing school population and the constant deterioration of present structures, and to meet the cost out of local taxation rather than through federal aid.

"A fixed levy should be set aside each year," said former President Merle Sidener, of the Indianapolis board of education, recently. "It will mean a saving in the long run, since each delay in a needed structure means a greater cost later on." In comment on this statement, the *Indianapolis Star* said: "Taxpayers and parents should not forget the city's experience a generation ago. The schools of that period were hailed as the best in the country. While complacently enjoying that reputation, the board made almost no provision for buildings to keep pace with the city's growth. The community suddenly found itself with a huge construction demand to overcome the serious shortage of rooms, without taking into account the annual growth of the school population. Many pupils failed to receive the educational advantages to which they were entitled because of that overcrowding and continued use of obsolete equipment."

The community, be it large or small, should not be remiss in its obligations to future citizens. It remains for the board of education to give practical expression to that obligation.

The Schools and Community-Fund Campaigns

THERE is a growing tendency in many communities to secure the active participation of the school personnel and pupils in the local charity movements. That tendency has in recent years found expression in securing the approval of boards of education in extending community drives into the precincts of the school itself, which means that the teachers and pupils have become engaged in fund-raising activities.

There are, however, school officials who seriously question the expediency of such a procedure. The fact that for many years there has been the pressure to use the schools as a clearing house for all sorts of social movements and commercial schemes, is an old story. But experience has taught that these departures constitute an invasion upon the scope and function of the school and finally prove a disturbing factor and a positive nuisance. The claim that the movements and schemes have in themselves an educational value is more than overbalanced by the interruptions they cause to the orderly process of education. A somewhat more tolerant attitude is manifested where the element of charity comes directly into play. But even here, recognizing the worthiness of a cause, the disturbing factors are present. The schools are asked to become a part of something which is entirely outside of their domain.

The question of supporting a community-fund campaign recently became an issue in the deliberations of the board of education of Providence, R. I., with the result that the request to permit the teachers and pupils to submit to collections and engage in raising funds, was definitely denied.

The subject is discussed at length by Charles Carroll, of the state department of education, who points out that the statute of 1922 forbids the distribution "through or in the public schools or to children on the way to or from school any circular, sample, package, coupon, ticket, or similar advertising matter."

The Rhode Island Association of School Superintendents in 1919 adopted resolutions on the subject which embodies the following paragraph: "There should be no advertising of any matter or exploitation of any cause in the schools through the distribution of circulars or articles or by announcements, unless it is related to the educational interests of the schools and has the approval of the superintendent or of the school committee."

It is readily admitted that teachers should give part of their leisure time to wholesome community activities and that the raising of funds for the Community Chest constitutes a laudable service. In making this statement, Mr. Carroll adds: "The most important caution to be observed in the instance of teacher-workers for the community fund is that the teacher as a solicitor should avoid soliciting and should be permitted to avoid soliciting contacts with the parents of children under the teacher's instruction, lest the teacher have the appearance of using his pupil as a pawn in a game to obtain a contribution from parents. It should not be difficult so to plan the activities of teacher-solicitors as to avoid contact of the teacher-solicitor with his own associates or subordinates in the teaching profession, and to avoid visits to the homes of children under his instruction."

While it is most commendable as well as a privilege on the part of the teacher to participate in the civic and social activities of the community, it remains that the schools themselves must not be burdened with matters that disturb rather than promote their labors.

Democracy in City School Administration

THERE was a period in the history of American school-administration service when a type of democracy prevailed which does not find general acceptance at the present time. The progress made during the past four decades in the administrative structure of city school systems provides a distinct departure from the conceptions and procedures which were considered progressive in the nineties of the last century. This old-time conception of democracy in school administration meant that complete charge of affairs was in the hands of the board of education. The superintendent was a chief teacher and a clerk, whose status was co-ordinate with that of the secretary. The board did the hiring and firing of teachers and principals, selected the textbooks, and more or less formulated the

courses of study. To ask and receive advice of the superintendent was believed to be the most democratic procedure.

With the evolution of the schools there has come a clarification of the status of the board of education as well as of the functions and responsibilities of the superintendent and other executive officers. There has also come about a clearer definition of the relationships which must exist in order to achieve the maximum of educational efficiency. Thus, within the past twenty years the modern board of education became the governing board of the schools which has concerned itself with general policies and departures and carried the legal responsibility for the success of the schools. While its functions have been legislative and judicial, it has delegated most of its executive labors to the professional and technical men best fitted to perform them. The superintendent has become the general manager and chief executive. He not only has had initiative in all instructional and professional matters subject to the approval of the board, but he has also carried them into execution.

In no other field of public service, except perhaps the city managership, has the professional executive been laden with so numerous and so widely differing duties and responsibilities. Except in the largest cities and the small villages, the work of the superintendent has ranged from finance and building construction at one extreme to curriculum planning and the redirection of the educational philosophy at the other extreme. To expect even a goodly proportion of the superintendents to succeed equally well in every one of the multifarious branches of their work is to ask a nearly superhuman performance from men whose chief interest is and must lie chiefly in curriculum, school organization and articulation, teaching methods, and educational outcomes. That here and there a superintendent has assumed duties and powers that approach a dictatorship is only a natural outcome of a movement for which superintendents as a national group and school boards as the local legal authority are equally responsible.

During the past five years a newer conception in democracy of school administration has asserted itself. This recognizes the superintendent as the chief executive but brings to his assistance the otherwise latent abilities of his associates and subordinates on both the business and instructional departments of the school system. It seeks to make full use in an organized way of the training, experience, and expert knowledge of all the intelligent workers in the schools from the youngest teacher to the newest janitor. While this has been done for many years in a very limited way, it is only within a very few years that large numbers of superintendents have depended upon the organized study of teachers for improvements in the curriculum, for changes in textbooks, for outlines of salary schedules, and for other important help in the conduct of the schools.

If there is such a thing as democracy in school administration, it can best be brought into service through a broader recognition of the several forces and factors that have information and opinions helpful in formulating policies. While it may be illogical and inexpedient to grant a determining voice to the teacher or the business manager of the board in the fixing of administrative policies, it still remains that the viewpoints of these will serve a beneficent and salutary end. It is only necessary to direct them.

School-Bond Issues or the Pay-as-You-Go Plan

IT HAS been demonstrated in a number of studies which have appeared in the columns of this publication that the greatest financial burden carried today by the schools is that which arises from the debt service. Millions of dollars which must lighten the tax burden, or increase essential services of the schools, are exacted each year to pay interest charges on deferred obligations and to retire these obligations.

It has been found easier in the past, when capital investments were under consideration, to resort to bond issues than to cover the investment out of the current tax income. And yet in many instances, the pay-as-you-go plan could have been employed with considerable final economy and without embarrassing the taxpayer. Economists have again and again demonstrated that a 4-per-cent bond issue means to repay one and one-half dollars after 24 years for every dollar that has been borrowed.

The application of the pay-as-you-go plan is urged at the present time with less vigor and potency than it was before 1930. The reasons are quite apparent. Where the necessity for new schoolhousing exists, the taxability of the community does not often permit construction projects out of current tax receipts. Where such projects are undertaken, the cost must be met by deferred payments. Hence, the proposal to meet capital investments out of current tax receipts cannot be entertained.

The merits of the pay-as-you-go plan are not, however, lessened by recent economic conditions. Had the school districts paid cash for buildings erected in the years when prosperity was with us, things would now move easier in the school field. The money which now goes to pay interest charges on debts contracted between 1905 and 1929 would go a long way toward paying current school costs.

If the pay-as-you-go idea cannot be adopted immediately, it can be definitely made a part of all city school-finance programs. In this connection, the suggestion of Mr. N. Bradford Trenham, educational counselor of the California Taxpayers' Association, offers some hope for bettering conditions. Mr. Trenham urges that school districts continue to issue bonds as needed, but that they increasingly pay for a part of new building construction out of current funds, and thus extinguish their obligations faster than they are created.

The compromise plan here suggested is in practical use in a number of large eastern cities. It is eminently feasible and sound, and it permits the gradual substitution of a cash basis for costly bonds.

Professional Courtesy Among Educators

IN THE State of Massachusetts a highly interesting political drama has been enacted. Dr. Payson Smith, State Commissioner of Education, was removed by the governor, in order to enable the latter to comply with the wishes of a certain political group.

It so happens that for nearly twenty years Dr. Payson Smith has given the highest satisfaction as an executive, besides enjoying a national distinction as an educator. Several boards of education and leading citizens in Massachusetts were of the opinion that he should be retained in his position.

An interesting feature connected with the movement is not only that it is designated as a political maneuvering, but that prominent educators mentioned as successors declined the honor of succeeding the incumbent. Prof. Robert E. Rogers, of the Massachusetts Institute of Technology, mentioned for the place, made the declaration that he would not accept and contended that Dr. Smith should be retained. The Boston superintendent of schools, Dr. Patrick Campbell, also refused to be considered for the post, saying that he was "with Dr. Smith to the end."

The case, however, is not a singular one. There are in this country a number of instances on record where educators have declined to accept preferment simply because somebody wanted to remove the other man. An honorable educator does not aspire to a prospective vacancy when such vacancy is based upon unwarranted causes or manipulated through unfair means. Nor is he willing to become a party to an unjust removal. He prefers to fill a vacancy which has come about in the regular order of things.

There is something reassuring in the thought that there are educators who do not rival with their contemporaries in the matter of positions. Those who have it in their hands to choose or eliminate educators, secure a wholesome lesson in the ethics that ought to be observed more particularly in the professional world.

What applies to the higher positions in the field of education ought to apply with equal force to all positions. While it is the duty of every schoolmaster to look ahead for promotion, and a better compensation, and thus avail himself of an opportunity, he cannot consistently enter into unfair methods and unseemly rivalry in gaining the preferment. Sooner or later, such procedure will meet with reaction. Honorable methods and fair dealing will lead to a more satisfactory service and greater stability in the matter of tenure.

The successor to Dr. Payson Smith has evidently had no part in the political maneuvers that brought about the removal of a distinguished fellow educator. James G. Reardon, superintendent of schools of Adams, Massachusetts, was chosen by the executive council by a vote of 5 to 4.

A *Century of Progress* in Schoolhouse Construction

*Forest R. Noffsinger**

(Continued from November, 1935)

Fire Protection

In the early days, when school buildings were one-story, one-room structures, and when large groups seldom met in the schoolhouse, there was no need for concern over the danger of fire. In cities, where larger buildings soon became necessary because of an increasing school population, and where a number of fire disasters took place in theaters, schools, and public meeting places, the need for proper fire protection became evident. There is evidence that study of the problem of providing proper protection from fire was being made as early as 1857 when Reid in a Smithsonian Institute report[64] discussed the placing of valves in ventilating flues to prevent the rapid spread of fire, the construction of fireproof walls and floors, and the use of noncombustible materials of construction. Burrowes in 1855[65] described the precautions to be taken to prevent fire from originating in the floor immediately above the furnace.

The first mention of a water supply to use in case of fire was made by Smithmeyer in his description of an ideal school building in an 1866 issue of the *Indiana School Journal*.[66] Smithmeyer suggested that reservoirs be placed in the attic to catch rainwater for use in case of fire.

As early as 1883 the use of fire escapes was mentioned. The 1883 report of the board of education for the City of New York[67] commented upon the lack of "modes of egress" in school buildings of the city and stated that in many cases "outside iron stairways have been erected." Lincoln in 1888[68] and again in 1893[69] discussed fire escapes but considered them at best "an undesirable refuge" and likely to prove very dangerous to a crowd of frightened children.

Lincoln, in the Lomb prize essay in 1888,[70] advocated "fireproofing beneath the floors with layers of plaster" and recommended "bringing the floors close up to the walls, thus cutting off the connection between story and story."

But the movement for better fire protection in schools did not become impressive until in the period between 1895 and 1900. One of the factors which brought about increased attention to the subject was the publication, in 1898, of the report of the sanitary condition of the 61 schoolhouses of Buffalo.[71] The report pointed out that over 5,000 children of the city were being housed on the third floors of school buildings without adequate means of stairway exits and with no fire escapes. According to the report these buildings were considered child-traps "of the most dangerous description, and may easily become at any moment the scene of some horrible holocaust." The report further indicated that "the ordinary fire escape, such as is used on business buildings, is entirely unsuitable for schools. The latter require carefully constructed covered stairs. The cover is especially important, since, without it, the stairs are likely to be covered with ice and snow at the season when danger from fire is greatest." Commenting on one typical building the report gave the following description: "One hundred and five children are on the third floor of this building. There is no fire drill, but every day at twelve and three o'clock the children are dismissed by the outside stairs. These outside stairs — called 'fire stairs' — are enclosed in a light board shell, which would probably be inflamed speedily if a fire occurred in the building; which would, in fact, simply quicken the spread of the flames from the bottom to the top of the wretched old three-story building. This stairway runs from the ground to the third floor on one side of the house. It is but 3 feet 7 inches wide. It has but one landing, at the level of the second floor, from which a door opens into it. Even a panic with no fire, might make a fearful death trap of it."

Burrage and Bailey in 1899[72] after pointing out the causes of school fires and the frequency of cheaply and faultily installed furnaces state that "in schoolhouses that are three stories or more in height, all stairways should be fireproof, well enclosed, and if possible, all corridors should be of fireproof construction.

Although there was some consideration for protection from fire in the period before 1885, there seemed to have been little attempt to put into practice what was considered ideal in theory until about 1890. Fireproof construction was discussed but the means for fire prevention were so crude that today a school building constructed according to the best theory of 1885 would be considered wholly unsafe. Two or three schoolfire disasters, the Collinwood school fire in 1908, the Peabody, Mass., school fire in 1915, and the Babbs Switch schoolhouse horror in 1925 — have served to develop rather rigid fire-protection standards for schoolhouse construction. Alarm systems, fire extinguishers, fire escapes, automatic fire doors, fire walls, electric exit lights, wiring codes, fireproof stair wells, and fire-resistive construction are some of the factors which have served to make recently built schoolhouses safe.

Artificial Lighting and Electrical Service

Schoolrooms were seldom used at night and therefore there was no need for artificial light installation until a rather recent date. The first mention of artificial lighting was found in a description of the Norwich Free Academy erected in 1856[73] and lighted by gas. The Woodward High School of Cincinnati, erected in 1857,[74] had gas fixtures installed. The high school at Fort Wayne, Ind., erected in 1868,[75] was supplied with gas, and an electric bell system connected the rooms with the principal's office. The Classical and English High School of Worcester, Mass., built in 1871,[76] had an electric clock system, and in addition was fitted with speaking tubes and bells connecting every room with the principal's office. The high school at New Haven, Conn., erected in 1872,[77] the Norcross School of Boston, erected in 1873,[78] and the Dudley School of Roxbury, Mass., erected in 1874,[79] were equipped with electrical annunciators and speaking tubes.

Kiddle and Schem, in 1876,[80] gave the first brief discussion on artificial lighting. They said: "In evening schools, the lighting should be, as nearly as possible, equal to that by day. If gas is used, the glass cylinder with a reflecting shade is recommended, for the purpose of steadying the light and making it stronger and whiter. . . . Ground glass shades are now generally discountenanced, their effect being to diffuse the light."

The descriptions of several buildings erected during the period from 1880 to 1885 mentioned that speaking tubes and electric bells were installed.[81]

Smith, writing in an 1886 report of the Ohio State Board of Health,[82] stated that yellow light was not desirable but that blue light was satisfactory. Smith also stated that artificial lights should have shades as a protection to the eye. The Buffalo survey of 1898[83] reported that the lighting of some of the rooms was poor and that kerosene lamps were used to supplement the natural light. In the 1899 report of the Indiana State Board of Health, Heath[84] stated that "in some rooms where natural light is insufficient artificial light might be employed and for this purpose the incandescent electric light is the best."

Since 1900 very definite standards have been set up for artificial light intensities and fixtures. No schoolhouse would be considered complete without adequate artificial lighting and other electric service provisions.

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[64] Reid, D. B., *op. cit.*, pp. 147–86.

[65] Burrowes, Thomas H., *op. cit.*, pp. 159–87.

[66] Smithmeyer, J. L., "School Architecture," *Indiana School Journal*, 11:281–3, August, 1868.

[67] City of New York, "Buildings," *Forty-Second Annual Report of the Board of Education of the City of New York for the Year Ending December 31, 1883*, pp. 26–9, 265–75. Wynkoop and Hallenbeck, New York, 1884.

[68] Lincoln, D. F., "School Hygiene," *Seventh Annual Report of the State Board of Health of Indiana for the Fiscal Year Ending October 31, 1888*, pp. 213–14. William B. Burford, Indianapolis, 1889.

[69] Lincoln, D. F., "School Hygiene," *Twelfth Annual Report of the State Board of Health of the State of New Hampshire for the Fiscal Year, 1893*, p. 250. Edward N. Pearson, Concord, 1893.

[70] Lincoln, D. F., "School Hygiene," *Seventh Annual Report of the State Board of Health of Indiana for the Fiscal Year Ending October 31, 1888*, pp. 213–14. William B. Burford, Indianapolis, 1889.

[71] City of Buffalo, *Report on the Sanitary Condition of the Public Schools of Buffalo*, 29–30, 35. The Buffalo School Association, Buffalo, 1898.

[72] Burrage, Severance, and Bailey, Henry Turner, *School Sanitation and Decoration*, pp. 16–18. D. C. Heath and Co., Boston, 1899.

[73] "Plans of Schoolhouses in Norwich," *Barnard's Journal of Education*, 2:695–8, December, 1856.

[74] "Woodward High School in Cincinnati," *Barnard's Journal of Education*, 4:521–5, December, 1857.

[75] "Fort Wayne High School Building," *Indiana School Journal*, 13:392–4, October, 1868.

[76] "Worcester Classical and English High School," *Barnard's Journal of Education*, 23:657–62, 1872.

[77] "Plans of Public High School, New Haven, Conn.," *Barnard's Journal of Education*, 24:193, 1873.

[78] Philbrick, J. D., "Plans of the Norcross Schoolhouse," *Barnard's Journal of Education*, 24:547–52, October 15, 1873.

[79] "Dudley Grammar School, Roxbury, Mass.," *New England Journal of Education*, 2:4, July 3, 1875.

[80] Kiddle, Henry, and Schem, Alexander J., *op. cit.*, p. 440.

[81] "The English High and Latin School, Boston, Mass.," *Journal of Education*, 13:134–5, February 24, 1881.
"The Growth of a City's Schools, St. Joseph, Mo.," *Journal of Education*, 18:390–1, December 20, 1883.
"The Elmwood Grammar-School Building, Providence, R. I.," *Journal of Education*, 21:283, April 30, 1885.

[82] Smith, D. B., "Defective Eyesight in School Children — Its Cause and Remedy," *First Annual Report of the State Board of Health of the State of Ohio for the Year Ending October 31, 1886*, p. 241. Myers Brothers, Columbus, 1887.

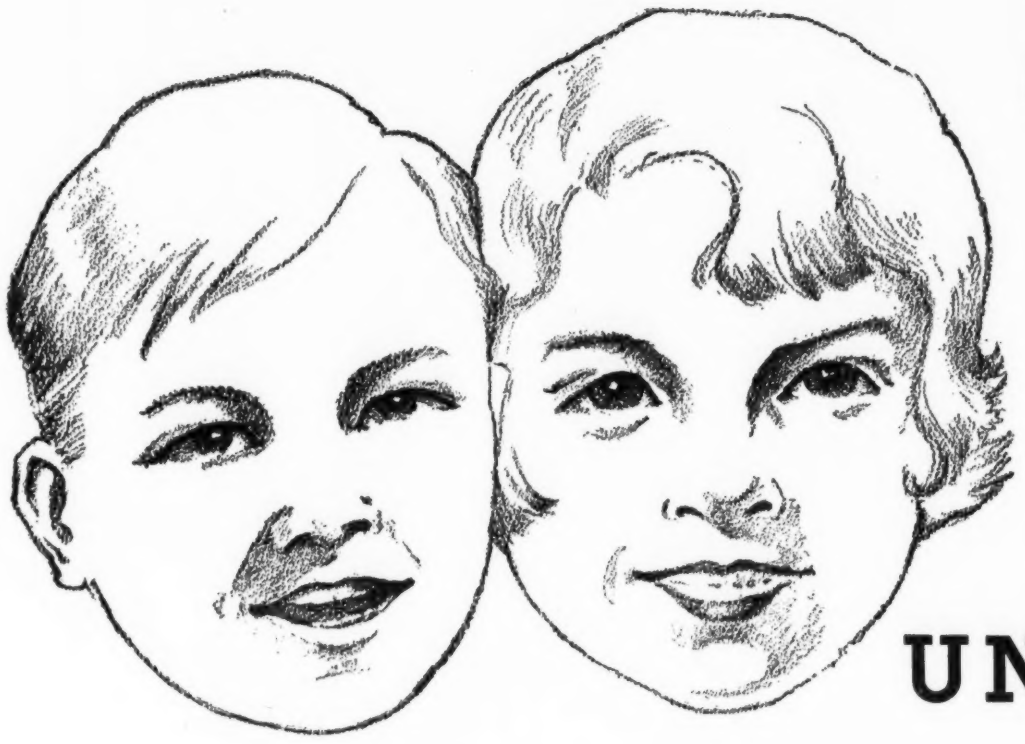
[83] City of Buffalo, *op. cit.*, p. 28.

[84] Heath, F. C., "The Eyes of School Children," *Eighteenth Annual Report of the State Board of Health of Indiana, 1899*, pp. 221–2. William B. Burford, Indianapolis, 1900.

(Continued in April)

EWING GALLOWAY, PHOTO

. . . While you give them an Education Keep their EYES UNIMPAIRED



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Making a School Building *Earthquake-Resistant*

J. Warren Ayer[1]

THE FIRST AVENUE GRAMMAR SCHOOL, ARCADIA, CALIFORNIA
From a photograph taken immediately before the earthquake damaged the building.

In March, 1933, a severe earthquake shook southern California, causing considerable damage in Long Beach and vicinity. Many school buildings collapsed and wholesale loss of life was averted only by the fact that the disturbance occurred after closing time in the afternoon. Destructive seismic disturbances had happened before on the Pacific coast, notably at San Francisco and Santa Barbara, but public officials, engineers, architects, and the general public had taken no effective action to guard against unnecessary property damage and the potential loss of the lives of thousands of school children through inadequately constructed schoolhouses.

Finally the people were completely aroused. Engineering experts were commissioned to make a thorough study of damaged and undamaged buildings in the earthquake area, with the result that a law, known as the Field Bill, was passed by the California legislature in the late spring of 1933. This law provides, among other things, that schoolhouses shall be so designed and constructed as to withstand a calculated lateral force or thrust of 10-G, or an induced side push or thrust equal to one tenth of the weight of the structure itself. The administration of the code, and the approval of all plans for proposed new buildings and for major alterations of old ones was placed in the hands of the Division of Architecture of the State Department of Public Works. The law also provides for inspection of existing school buildings by the Division of Architecture upon the request of the governing board of any school district, the cost to be borne by the district.

The types of buildings suffering most damage in recent earthquakes were those of unreinforced masonry, especially brick and tile structures. The city of Arcadia, in common with many other districts, possessed a deficient school plant constructed of these two materials on its First Avenue site. While the city is located far enough from the center of the 1933 disturbance to have almost completely escaped damage at that time, its proximity to several active faults, notably the San Andreas fissure along which the San Francisco and Santa Barbara quakes occurred, caused the board of trustees to ask for a survey of the buildings, and later, to undertake reconstruction with the help of the Federal Government.

Now that earthquakes have become more general, having visited both the northwestern and northeastern sections of our country, many persons will probably be interested to learn in a general way just how engineers and builders go about making a weak masonry building resistant to stresses induced by earthquakes. The First Avenue Elementary School in Arcadia, California, furnishes a good example.

The building is a one-story structure containing fourteen classroom units, a library, a teachers' room, three offices, and an auditorium with a seating capacity of 375, and in the basement an art room, storage space, and a cafeteria. The older portion of the building was of hollow tile, the newer of brick, all covered with cement plaster.

In securing the required resistance to lateral thrusts the following items were dealt with: (1) The character and bearing capacity of the soil was determined and adequacy of the foundations was assured. (2) The needed strengthening of all outside walls and bearing partitions was determined. (3) Adequacy of anchorage of all articulating parts of the buildings was provided for. (4) The roof structures were examined and strengthened where necessary. (5) Structural-steel longitudinal, cross, and diagonal bracing was provided so as to make rigid horizontal diaphragms of ceilings and the bases of roof structures. (6) Structural bracing and roof members were securely anchored to outside walls and bearing partitions.

In reinforcing the outside walls the procedure was as follows: The parapet wall was removed, the roof was jacked up, and four inches of masonry was broken from the outside of the walls below. Reinforcing steel rods were doweled into the foundations and allowed to extend well above the roof line, and a complete basket of reinforcing steel was constructed around the walls some two inches out from the now roughened walls from which part of the masonry had been removed. With air-pressure guns a dry mix of cement plaster, known commercially as "Gunite," was blown against the walls and built out around the crisscrossed reinforcing steel to a thickness of four inches, then troweled to a satisfactory finish. In the meantime, forms were constructed above and a reinforced-concrete-bond beam and parapet wall was cast so as to be practically integral with the Gunite and steel construction. It will thus be seen that the old structure is completely enveloped by reinforced concrete to which the remaining masonry is anchored by the rough surfaces of broken tile and brick and by suitable steel dowels.

As might be expected, such radical reconstruction required much interior plastering and refinishing. The walls have been repainted in pleasing tones, and the whole building presents a new appearance.

Since this was an SERA project, it is difficult to judge what it would have cost under private contract, but probably not far from $70,000, or about 50 per cent of the price of new construction. The Arcadia school district has actually spent $42,817.16, and has received Federal grants, mostly in labor, amounting to approximately $69,000. Expenditures of about $3,500 for added facilities should be deducted from the expenditures by the district, and a like amount from those of the SERA to arrive at the actual cost of reconstruction.

Literally hundreds of masonry buildings in California are being made resistant to earthquake action, and the method used in Arcadia is a typical one. Many others are so built as to make rehabilitation impossible or impracticable. New school buildings are now being properly engineered and built. Are these structures really earthquake proof? Certainly not, but they will withstand with little damage and with comparative safety to their occupants seismic disturbances of the magnitude of any that have been experienced in California or that are likely to occur. There is really no good reason why new school buildings everywhere should not be made as strong as required by the California code.

[1]Superintendent of Schools, Monrovia-Arcadia-Duarte School District, Monrovia, Calif.

THE FIRST AVENUE GRAMMAR SCHOOL AFTER THE REMODELLING AND CONSTRUCTION HAD BEEN COMPLETED
Effective modern design has replaced the classic details and the heavy portico, removing for all time any danger of collapse.

♦ Waterloo, Iowa. The west side board of education has received bids on the remaining building and improvement projects. The projects are part of an expansion program, involving an expenditure of $109,000, of which the PWA is contributing $49,000.

♦ Denison, Iowa. The Federal Government has approved a project, calling for the erection of a high school, at a cost of $125,000. The building will be erected with the aid of a WPA grant of $65,000.

This attractive corridor in the Champaign Junior High School, Champaign, Ill., is Armstrong's No. 12 Taupe Jaspe—⅛" gauge. 2700 sq. yds. of Armstrong's Linoleum were used for floors throughout the school.

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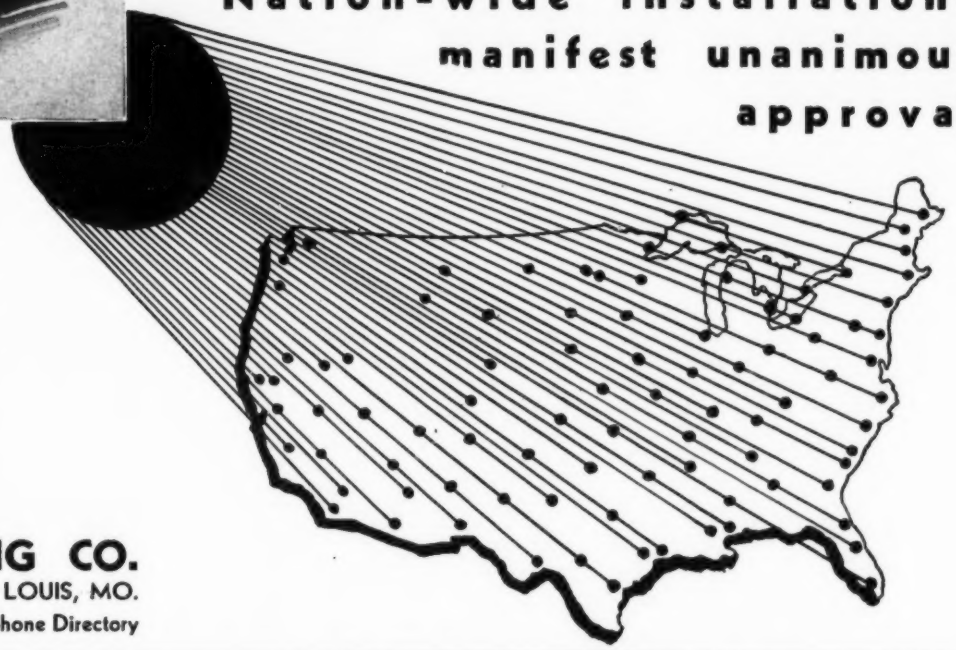

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A MODERN VERSION OF A RURAL SCHOOL

(Continued from Page 44)

on the second floor. Toilet facilities are on all floors.

Busses load and unload the children twice daily from the private driveway within the school grounds, but in sight of the public highway. Pleasure cars park frequently to watch this performance as it is an ever-inspiring sight to see the youth of America preparing to go about the nation's business. Some of the bus drivers are employed as part-time janitors, and between bus trips busy themselves with repair and cleaning activities within the building and the care of lawns, walks, and drives.

On the crest of the hills to the east a large reservoir has been built. It is fed by abundant springs, is piped to the school for water supply and through the village street for fire protection. The hills are full of limestone, so the water for all school purposes has to be softened through special filters.

An outdoor swimming pool has been provided, with a wading pool for the little tots. Provision is made for heating the icy water whenever the pool is in use. The pool was built not so much as a matter of entertainment, but as a training tool, because all the school children who are physically right are required to learn to swim and take care of themselves in the water. Life-saving instruction also is given. The pool is fenced about and padlocked for reasons of safety. It is open for use at certain hours of each day during the summer vacation, under adult supervision.

The school is not only the social but the health center of the community. In addition to the regular school courses, there is a young physician, a woman, who examines each child thoroughly and is on the lookout for infectious and contagious diseases. She functions under the direction of the dean of the Albany Medical School and a council of physicians from the larger villages surrounding Van Hornesville, who have some practice in the locality. In addition to dealing with eyes, teeth, adenoids, tuberculosis, etc., she is paying especial attention to nutrition, as a proportion of the children are found to be undernourished. This condition arises not from want of food but from improper diet adjustment in the homes.

The school kitchen and cafeteria are gradually correcting this problem of undernourishment by supplying all the milk that the children will drink, and also by having the class in agriculture go to Mr. Young's near-by farm from time to time and butcher steers or calves and deliver the meat to the school. Out of this, stews and the like are made and served as hot lunches from about the first of November to the first of May.

The school doctor, although without legal authority, but through the compelling affection of the children, is getting back into the homes and serving effectively in the field of preventive medicine. That is one of the great needs of the average rural community. There are practically no efforts at prevention of disease or early discovery of it.

In spite of the fact that these children are, in the main, sons and daughters of farmers, they know little about the occupation of farming. The basic ideas of farming and gardening are, therefore, taught, and near-by farms are used for lessons in dairying, farmshop work, the planting and cultivation and harvesting of crops, etc. Lessons in shopwork are carried on through the village blacksmith shop and the local woodworking shop, both of which are operated by experienced mechanics. The near-by farms are used for practical illustration.

This rural section is not unlike urban sections in the fact that hundreds of children have diversified talents. Some can draw, others can sing, play, act, model, or are quite apt at mechanical pursuits. The respective talents of these children are encouraged and the result is that they have glee clubs, art exhibitions, a school orchestra, amateur theatricals, outdoor pageants, and musical recitals, all derived from the talented children of the school.

Especial attention is given to "solo" appearance on stage and elsewhere to develop poise and confidence. Public-speaking contests of district, county, and state are a feature of the school activities. Dancing is taught and encouraged as an aid to graceful carriage and good posture.

The school operates a barber shop and a beauty parlor because there are no such facilities in the village. The beauty parlor is operated on very conservative lines and serves the purpose of teaching the girls care in dressing and personal appearance. This department is a part of the home-economics work in which the girls are taught cooking and the preparation of meals, the making of clothes, and the selection and care of household furniture and furnishings.

The school has its own greenhouse where the classes in horticulture carry on their practical experiments, and from which growing and blooming plants are provided for class and other rooms throughout the building.

Across the beautiful Otsquaga Creek, reached by rustic foot bridges, are durably constructed, well-appointed playgrounds for the younger children. Tennis courts on a higher level beyond, overlook the playgrounds and the creek. The athletic field is of generous acreage, resulting in the development of baseball nines, football teams, basketball and handball tournaments. Healthful rivalry is stimulated and great benefit is derived by the pupils of all ages.

Plans have been made for the reconstruction and extension of an Old Mill which is located about 100 feet from the school, into a regulation-size, fully-equipped gymnasium. Nature classes need go

(Concluded on Page 58)

UP-TO-THE-MINUTE *with International school equipment*

This classroom boasts facilities which make it one of the most up-to-date places of learning in the world.

The International clock, sound reproducer and telephone installed here are duplicated in all other rooms throughout the building—all controlled automaticallo and operated from one central point, the principal's office.

The clocks maintain one dependable, accurate time in all rooms, eliminate confusion and promote regularity. The sound reproducers bring a wide variety of radio, speech and musical programs tosupplement the regular curriculum aed, by means of a "return speech" feature, convey sound from the classrooms to the principal's office. Classroom assembly and dismissal signals also come over the sound reproducers and the same circuit permits private telephone coversations between teachers and supervisors.

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Whether it be a complete Electric Time and Program System, Central Control Sound System, Laboratory Panel, Fire Alarm or Telephone System, the world's oldest, largest and most dependable source of school equipment is the logical place to purchase. It will pay you to investigate—and to specify—"International".

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ALSO FIRE ALARM, BELL AND TELEPHONE EQUIPMENT
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(Concluded from Page 56)

no further than the setting of the Old Mill for material and inspiration.

The road at the front of the Old Mill is about level with the first floor and drops possibly 15 feet at the northerly end. The gymnasium will be on the upper level, and the school shops are planned for the lower level.

In process of preparation, too, are plans for a garage. It is designed to house the school busses and the teachers' private cars. An automobile and machine shop is provided for the care and maintenance of the school busses and will be used for student instruction. In the garage scheme space is provided for the snow plows and for the school truck.

While ministering to the wants of the children of the district, an obligation is felt to the parents as well. Life on the average farm and in the small isolated hamlets is hard and monotonous. The school functions as a civic center, dividing honors with the grange. Twice each week the parents enjoy the stirring suspense of a dramatic picture or lose themselves in the excitement of a western thriller, and for those who are so inclined, there are speakers who discourse on art, literature, civics, and pertinent agricultural subjects, such as "improvement of the soil," "better seed culture," or the "prevention of disease in livestock." Neighborliness, too, is thereby encouraged and promoted.

A novel plan has been evolved to prevent overcrowding of the school-and-community assembly room on motion-picture nights and other special occasions by those who might have no other interest in the school. Entrance is gained by membership in the Parent-Teacher Association on payment of $3 or $4 for a season ticket. The funds derived from this source aid with lunches and are also used to provide medical and hospital service for such children as are unable to provide for themselves.

It is proposed that when the need arises, the road which bounds the school property on the north and which terminates at the Old Mill, will be diverted, and additional ground acquired on which to erect an auditorium. The present assembly room will then become the activity room for music and similar subjects where a stage is a desirable accessory.

Very interesting experiments are being made in the use of radio and motion pictures in the educational field. The assembly and all other rooms are provided with radio loud-speakers as a part of the building construction.

Widely read has been the story of the unique educational experiment at the Van Hornesville Central School when after ten weeks of night school for adults, 130 farmers and villagers were presented with "diplomas." There were courses in typing, bookkeeping, home economics, agriculture, current events, reading and writing, art, science, music, French, and arithmetic. The night work was divided into two 45-minute periods, followed by a half hour of educational motion pictures in the assembly room.

No examinations were held and the students were not graded on their efforts, otherwise they might have been too timid to attend.

The experiment came about through the expressed wish that such facilities as the children enjoyed might have been their lot. No day student was permitted to attend the night school. The principal, 14 teachers, and all of the bus drivers contributed their services for the ten-week period. Mr. Young presented the diplomas in the most informal manner, calling the "graduates" by their first names as most of them were old neighbors or acquaintances. Seven of the women had gone to school with him in the little old red schoolhouse. The estimated cost of this adventure in adult education was $2 a night.

Since the erection of the school group in Van Hornesville, a new spirit of community pride has manifested itself that is evidenced in many ways. It has inspired the people of this section with renewed zeal to beautify their homes and grounds, and to improve their farms. Through it a new and intense interest has arisen, beauty has come into their lives, and again the centralized school has justified its creation.

School Finance and Taxation

School Finances at Enid in Good Condition

The financial condition of the school system at Enid, Okla., is the best it has been in recent years, according to a report presented to the board of education at a meeting held on November 4. According to the report, a total of $35,824 was outstanding from past years, but the sinking fund has absorbed $34,983 of this, leaving $841.86 outstanding. Only $194.75 in warrants is outstanding for the present year. Due to the operation of the sinking fund, the school board has not paid a cent of interest in the past two years.

FINANCE AND TAXATION

♦ The Michigan Department of Public Instruction has begun the allocation of $4,472,000 in primary-school-fund money to school districts of the state, following the removal of difficulties encountered in the final distribution. Added to $11,038,529 distributed to school districts earlier in the year, the money released will bring total primary school fund disbursement to $15,510,000. It is anticipated that a little more than $20,000,000 will be drawn from the state general fund for school support, and it is believed that sufficient money will be available to prevent the closing of any schools this year. The distribution is being made at the rate of $3.20 for each school-census child. The previous distribution of more than $11,000,000 was at the rate of $7.93 for each child.

♦ Omaha, Nebr. The board of education has adopted a budget of $3,642,630 for the school year 1935–36, which is an increase of $308,305 over the year 1934–35. The largest item is $2,082,920 for instruction expenses, which represents an increase of $108,210 over the estimate of a year ago. The next largest items were $724,000 for debt service, and $321,700 for operation of plants.

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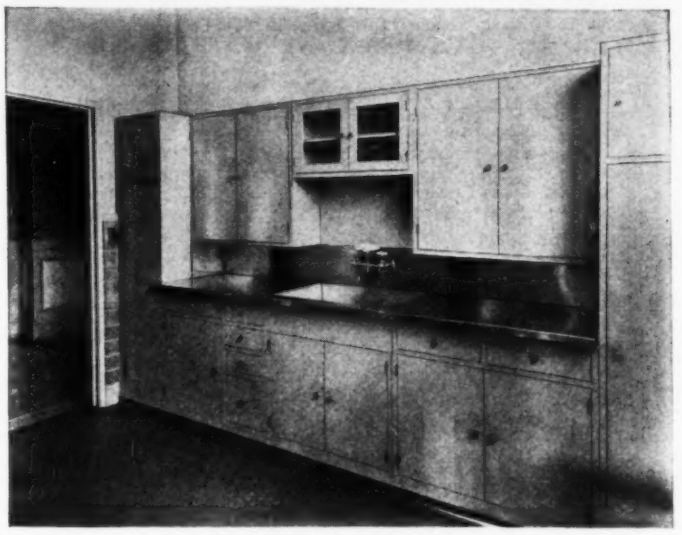

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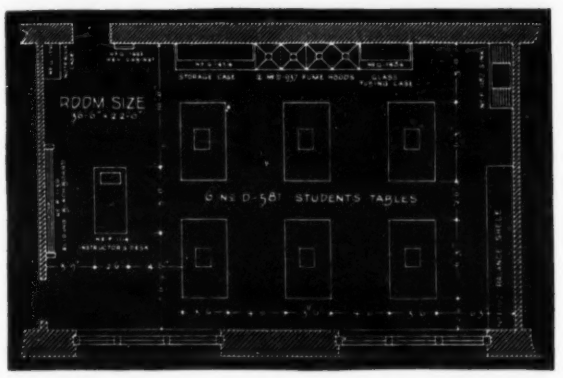

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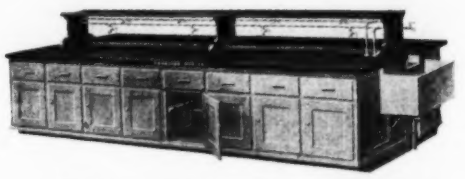
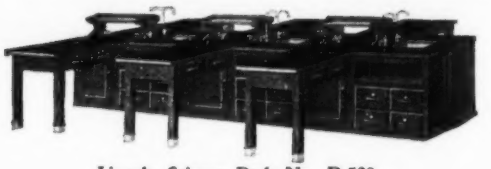


Chemistry Desk No. D-702 (Metal)



Lincoln Science Desk No. D-503

Domestic Science Table No. BL-76

Drawing Table No. BL-94

The budget shows decreases in general control and debt service, due to a reduction of expenses in these items. The increase in the budget does not provide for salary increases. This is offset in part by the granting of bonuses of $30 to 1,400 members of the teaching, clerical, and janitorial staff in September. The cost of these bonuses was slightly in excess of $42,000.

♦ Peoria, Ill. The board of education has sold a school-building bond issue in the amount of $820,000, at an average annual interest rate of 2.31 per cent.

♦ Alexandria, Va. The board of education has adopted a budget of $239,402 for the school year 1935–36, which is an increase of $23,337 over the estimate of $216,064 for 1934–35. The largest item in the budget is $160,892 for teachers' salaries.

♦ New Rochelle, N. Y. The board of education has readopted its budget for 1936 on the basis of a 5-per-cent salary restoration above the figure for 1935. In adopting the 5-per-cent return, the board requested the teachers to make salary contributions again in 1936, with the amount set at 7 per cent.

♦ Grand Rapids, Mich. The board of education has directed its attorney, Mr. Stuart E. Knappen, to start suit against the city to collect $362,000 in interest and penalties on delinquent school taxes, collected by the city but not paid to the board. The unpaid taxes in the board's claim date back to 1926. Payment will include $15,800 representing interest at 5 per cent collected on delinquent taxes since April 1, 1935.

♦ Pittsburgh, Pa. Better tax collections this year will tend to offset the fact that the 1936 budget of the school board is $1,340,974 more than the estimate for 1935, which amounted to $13,751,768. The collection of delinquent taxes to November 9 of this year amounted to $10,153,029, or an increase of $794,998 over the same period for 1934. The larger part of the increase of $1,974 in the budget is due to the restoration of teachers' salaries and other pay rates to the level of 1932.

♦ Denver, Colo. The board of education has adopted a budget of $5,908,367 for the school year 1936. The new budget is $593,369 in excess of that for the last year, but its requirements will be met by the present mill levy of 14.6.

The largest item in the budget is $4,033,336 for instruction expenses, which include salaries of the school staffs. For purposes other than salaries, the budget provides a total of $87,000 in excess of the budget for the year 1934–35. Most of the increase is in capital outlay, in items for replacement of furniture and equipment, and in expenditures for books and educational supplies. During the past four years, expenditures in this field were considerably reduced. The additional funds available have made it possible to reduce the salary cuts which were in effect by approximately one half. The general 20-per-cent cut has been reduced to 10 per cent, effective December 1, the beginning of the budget year 1935–36. Pensions, which were reduced 10 per cent, have been restored to the former level.

School Building News

♦ Owensboro, Ky. Plans and specifications have been prepared for the new Lee School and the annex to the Western Colored High School, which are estimated to cost $136,363. The building program will be financed through the aid of the PWA.

♦ Placentia, Calif. The school board has received notice of the approval of plans for a $127,000 school-building program, to be carried out with PWA funds. Funds for the construction include $70,000 the board has on hand, $60,000 in insurance money, and a federal grant of $57,000.

♦ Knoxville, Tenn. The school board has received notice of the approval of a PWA grant of $260,182, to be applied toward a school-building program involving a cost of $578,000.

♦ Baltimore, Md. School-construction work, involving an expenditure of more than $6,300,000, has been undertaken, under PWA auspices. Under the new PWA program, providing a 45-per-cent grant, construction work has been begun on 35 additional schools, at a cost of $4,025,685. Twenty-two projects, involving a cost of $2,302,952, have been completed.

♦ Indianapolis, Ind. The school board has received bids for the construction of the Roberts School for Crippled Children, at a cost of approximately $218,000. The building is being financed by a $50,000 bond issue, a $65,000 bequest, and a $98,000 federal grant.

♦ Arkansas City, Kans. The school board has sold an issue of 2¼ per cent bonds in the amount of $99,000, at a premium of 11 cents per $1,000. The proceeds of the bond issue will be used for the construction of an auditorium-gymnasium building.

♦ Tulare, Calif. Construction work has begun on the three new buildings for the Tulare High School. The buildings will be erected with a PWA grant for $108,000.

♦ Hazleton, Pa. The school board has sold $150,000 worth of school bonds, the proceeds of which will meet its share of the new school-building project, estimated to cost $1,450,000.

♦ Detroit, Mich. The board of education has awarded the contracts for the construction of the Western High School. The cost of the construction will amount to $731,704.

♦ Fitchburg, Mass. The board of education has received bids for the construction of the senior high school, which is estimated to cost $999,926.

♦ Dallas, Tex. The school board of the Highland Park School District has received bids for the construction of a high school, estimated to cost $275,000.

♦ Belleville, N. J. Bids have been received for the construction of an addition to the Belleville High School. The building will be erected from plans prepared by Messrs. Guilbert & Betelle, architects, of Newark, N. J.

♦ Toledo, Ohio. The board of education has awarded the contract for the construction of the Pickett School, at a cost of approximately $133,000.

♦ Springfield, Ill. The board of education has sold a bond issue of $400,000, the proceeds of which will be used to finance a school-building program. The construction work which is estimated to cost $727,000 will be financed with a PWA grant of $327,000.

♦ Mt. Vernon, N. Y. The voters of the city have approved a proposal, calling for a bond issue of $303,000, to be applied toward the construction of a new Nathan Hale School, and an addition to the Wilson School. The bond issue will be matched by a PWA grant of $247,525 for the two buildings, making the total cost approximately $798,678.

♦ Chattanooga, Tenn. Contracts have been let for the construction of the Hixson High School, the Soddy-Daisy High School, the Red Bank Junior High School, and improvements and additions to the Eastdale Grammar School. Contracts have also been let for the construction work on the White Oak Grammar School addition, and the Anna B. Lacey School addition. The total cost of these projects will reach $421,400.

♦ Springfield, Ill. The board of education has received bids for the construction of the Highlands School, which is to comprise a part of the $727,000 school-building program.

♦ Taft, Calif. The voters of the school district have approved a bond issue of $150,000 to be used for school-building purposes.

♦ Sidney, Mont. The board of education has received bids for the construction of a high school, estimated to cost approximately $130,000. The building

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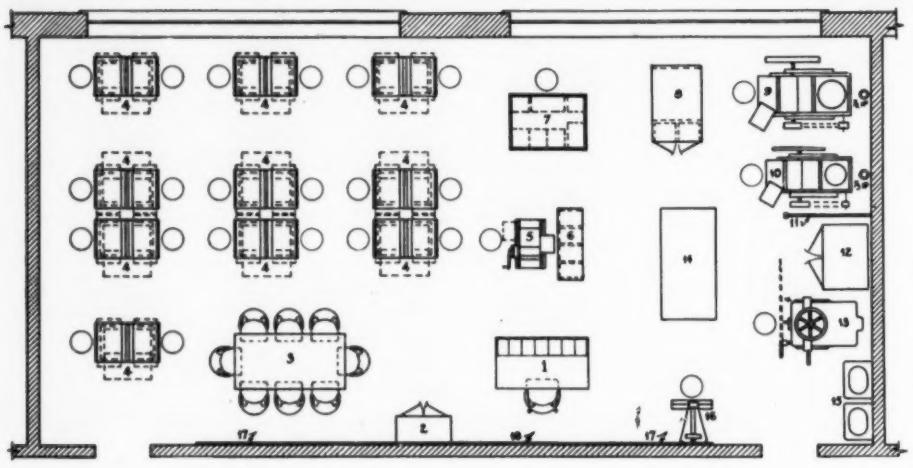

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will be financed with a bond issue of $64,000, and a PWA grant of $59,000.

♦ Middlesboro, Ky. The board of education has awarded a contract for the construction of a junior high school. The building will be erected with the aid of PWA funds in the amount of 45 per cent of the cost of construction.

♦ Fort Smith, Ark. The citizens have approved a proposal, calling for a school-improvement program, to involve an expenditure of $155,000. The citizens voted to pledge 1 mill of the 18-mill school tax to repay a loan of $87,000 from the PWA, which will be accompanied by a grant of $68,000.

♦ Grand Forks, N. D. The board of education has sold $150,000 worth of school bonds. The proceeds of the bonds will be combined with a federal grant of $119,455 for the construction and equipment of the final wing of the Central High School. The building will be erected from plans prepared by Mr. Joseph Bell DeRemer, architect, of Grand Forks.

♦ Austin, Tex. The taxpayers have approved a proposal, requesting the city council to issue $350,000 in bonds to pledge a PWA loan of that amount for financing 14 projects in a school-improvement program. The federal grant, supplementing $350,000 in bond revenues, will enable the school board to begin an improvement program totaling $636,363 during the year 1936.

♦ San Francisco, Calif. Bids have been received for the construction of the final units of the three-million-dollar PWA school-building program. The program includes an elementary school, a vocational school, and an auditorium for the Webster School.

♦ Alhambra, Calif. The voters have approved a bond issue of $12,392,600 for the financing of a school-building program, estimated to cost $22,532,000. The fund will be supplemented by grants of $10,139,400 from the PWA. The larger part of the fund will be used for the construction of elementary schools. Approximately $11,000,000 will be expended for new construction and rehabilitation of elementary schools, with high schools receiving more than $10,000,000, and junior colleges $647,000.

♦ Palmyra, Pa. Bids have been received for the construction of the junior-senior high schools, estimated to cost $260,000.

♦ New Bedford, Mass. The school board has approved plans for a new building to serve as storage warehouse and machine shop for the school system. The building will be erected with the aid of federal funds and will cost approximately $42,000.

♦ Jackson, Miss. The board of education has prepared a school-building program, to involve a cost of $553,000. The program comprises 15 different projects, including three new buildings, and additions to other structures. The construction work will be financed by a bond issue and a federal grant.

♦ Mishawaka, Ind. The school board has sold an issue of 3½-per-cent bonds in the amount of $100,000, at a premium of $225.50. The proceeds of the bonds will be used to finance the construction of the Mary Phillips School, part of which is being furnished by the Federal Government.

♦ Greenville, Mich. The voters have approved a bond issue of $102,000, which is to match a federal grant of $83,454 for the construction of a high school and gymnasium.

♦ Portland, Me. Plans have been completed for an addition to the high school in South Portland, at a cost of $134,000. Mr. L. I. Beal, of Portland, is the architect.

♦ Newport, Va. The contract has been let for the construction of a junior high school in the Wythe district, at a cost of $151,754.

♦ Milton, Pa. The voters of the city have approved a bond issue of $80,000, to be applied toward the cost of construction of additions to the high school and the Pollock School. The bond issue will be matched with a federal grant of $66,000.

♦ Middletown, Conn. The school board has purchased a piece of ground upon which it will erect an eight-room elementary school. The building will be completed at a cost of $100,000. Messrs. Lamb & Siegenburg, of Middletown, are the architects.

♦ Seymour, Conn. The voters have agreed to raise the sum of $43,000 for building an auditorium for the high school. The building will be financed with the aid of a WPA grant of $19,000.

♦ La Salle, Ill. The voters have approved a bond issue of $250,000, to be applied toward the cost of construction of the proposed addition to the La Salle-Peru Township High School. The total cost of the building is $250,000, of which the Federal Government will allot a grant of $204,000. The building will contain 30 classrooms, in addition to gymnasiums, cafeteria, library, and other special rooms, and will relieve overcrowded conditions and provide for the extension of the commercial and other departments.

♦ Springfield, Ill. At a recent election, the voters approved a school-bond issue of $400,000, which is to match a federal grant of $327,000, for the financing of a school-building program to cost $727,000. The new program calls for the erection of a high school at a cost of $500,000, and improvements to the grade schools to cost $227,000.

♦ Waco, Tex. The voters have approved a school-bond issue of $99,000 as part cost of a junior-high-school building. This amount will be matched by a federal grant of $81,000, making a total cost of $180,000 for the building.

♦ Wyoming, Pa. The voters have approved a bond issue in the amount of $150,000, the proceeds of which will be used for the construction of a new school.

♦ Salinas, Calif. A program of school-building improvements will be carried out with the aid of PWA grants. The program, which includes a junior college building, a home-economics unit, an elementary school, and quakeproofing work, will be carried out at a cost of approximately $410,000. Of the total, the PWA provides 45 per cent of the construction cost.

♦ Smyrna, Del. The board of education has completed a school-improvement program, at a cost of $325,000. The projects included a new high-school addition and improvements to the school buildings which have increased the value of the school plant to approximately $500,000. The construction work was financed with the aid of PWA funds. Messrs. Brown & Whiteside, architects, of Wilmington, Del., were in charge of the planning and construction work.

♦ Chenoa, Ill. The board of education recently sold $65,000 worth of school bonds, at 4 per cent interest, realizing a premium of $4,662. The proceeds of the bonds will be used for the construction of a high-school building.

♦ Brookline, Mass. The board of education has appointed Messrs. Kilham, Hopkins & Greeley, architects, of Boston, to plan and supervise the construction of the Edith Baker School. The building will be financed with a WPA grant of $225,000 and an appropriation of $311,000 by the school board.

♦ Burton, Ohio. Plans have been completed for the erection of a new elementary school, at a cost of $129,000.

♦ Ubly, Mich. Bids have been received for the construction of a high school. The building will be erected as a PWA project, with a bond issue of $46,999 and a federal grant of $38,454.

♦ Chillicothe, Ohio. Bids have been received for the construction of an elementary school, estimated to cost $99,459.

♦ Pen Argyl, Pa. The Federal Government has approved a project, calling for the erection of a high school, under PWA auspices. The building will be erected with a government grant of $73,000, and a bond issue of $112,000 to be voted by the school district.

Water, Water Everywhere, But Not a Drop . . . . . ! !

● INDICTMENT

Over eighty Portable Chair manufacturers, but not a one that offers true comfort together with other important features.

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It was ROYAL that originated the steel folding chair some thirty years ago . . . . and perhaps today sell as many as anyone . . . . but ROYAL frankly admits that while their chairs are less uncomfortable than most chairs . . . . neither theirs nor any other afford the seating satisfaction of a non-folding chair.

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There have been many things wrong with all portable chairs . . . . efforts to correct existing shortcomings have not progressed very far . . . . shortcomings that everyone knew about . . . . faults that most manufacturers had long despaired of overcoming.

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For two years ROYAL has had this in mind . . . . and in their experimental department. They have been busy analyzing chairs . . . . studying what the "sitter" needs . . . . trying to do things that "couldn't be done."

● EUREKA ! ! !

At last ROYAL has developed a chair that is an evolution . . . . and maybe a revolution. They are just about ready to announce these chairs . . . . which are of such a new and different principle that those of old design (Royal chairs included) will soon be in the horse and buggy class.

● NO NAME

ROYAL has everything but the name for this accomplishment . . . . perhaps within the next month they, or somebody else (you included) may think of one that is suitable. To assist in your naming our child, a sample chair for your inspection will be sent on request. IN ANY EVENT, SEE THE ROYAL ANNOUNCEMENT NEXT MONTH.

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MODERN SCHOOL SEATING
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SEALS AND FINISHES WOOD FLOORS

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THIS NEWEST WAY TO REFINISH CLASSROOM FLOORS

When you refinish classroom floors with Seal-O-San, the need for expensive labor ends. For your own janitor mops Seal-O-San on. He spreads two, thin, quick-drying coats over the cleaned floor, and the job is done. There's no delay—no costly hand brushing by high-priced painters.

Seal-O-San points the way to *real* economy. That is why it is used in more than 3500 schools today. For this beautiful, economically maintained finish—inexpensively applied, cuts refinishing costs by 50% and more.

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WE ALSO MANUFACTURE A COMPLETE LINE OF DEODORANTS, FLOOR SOAPS, WAXES, DISINFECTANTS, LIQUID TOILET SOAPS, INSECTICIDES, AND PLUMBING CLEANSERS

School Board News

THE ILLINOIS SCHOOL-BOARD ASSOCIATION MEETS IN SPRINGFIELD

The Illinois School-Board Association held its annual meeting November 21 to 23, in Springfield.

The association adopted a resolution, proposed by Mr. F. J. Petru, providing for an amendment of the state law, to make city, county, and state employees subject to garnishment. It was the concensus of opinion that teachers and other school employees, as well as city, county, and state employees should live up to their obligations the same as other persons and should not be exempt.

A committee of city superintendents presented a recommendation that definite legislation be enacted for obtaining an improved legal status for superintendents, showing a definition of the position of superintendent; a statement of qualifications or prerequisites and tenure; and a statement as to duties and relationships of superintendents. Another recommendation proposed that superintendents be placed in charge of all child accounting for an entire city, including the private and parochial schools.

At the business session, the school boards listened to reports of high-school and elementary-school officials, and to reports of the several committees. Among the papers read was that of Mr. Ernest Coberly, of Springfield, on "The Adult Education Movement," and one by Mr. J. H. Hauberg, of Rock Island, on "Schools and Illinois History." At a combined afternoon session, participated in by the school boards and superintendents, there was a discussion on the subject, "How to Get Textbooks for Children."

The meeting closed with the election of officers for the year. Mr. L. W. Chulock, Maywood, was elected president; Mr. F. C. Dodds, of Springfield, elected vice-president; Mr. H. H. Coe, of Springfield, treasurer.

The other school-board officers elected were: Mrs. Laura D. Smith, Highland Park, first vice-president; and the following regional vice-presidents: Region 1, Northwestern, Charles W. Roe and C. A. Anderson; Region 2, Tri-County, Frank J. Petru, P. J. Kueter and George T. Rogers; Region 3, Western, Truman Plantz, Jr., and F. Hallin; Region 4, Illinois Valley, W. F. Confrey and George North Taylor. Region 5, Northeast Central, James Yatuni and W. W. Porter; Region 6, North Central, D. F. Blankenship and D. M. Stutzman; Region 7, East Central, Paul Busey and W. F. Buckner; Region 8, West Central, G. B. Kendall, Jacksonville; and Mr. Dodds; Region 9, South Western, A. W. Hoelscher and B. B. Voris; Region 10, Eastern, Rae Colson and V. E. Metzler; Region 11, Southeastern, H. G. Frankland and D. M. Haupt; and Region 12, Southern, J. D. Roe and E. P. Easterday.

The city superintendents named the following officers: Frank Jensen, La Salle, president; R. O. Stoops, Jacksonville, vice-president; H. B. Black, Mattoon, treasurer; W. L. Gard, Beardstown, secretary; Monroe Melton, Normal, chairman of the executive committee; Frank Phillips, Dekalb, and V. L. Nickell, Champaign, executive-committee members; W. R. Curtis, Alton, pupils' reading circle; and W. R. Hamilton, Oak Park, teachers' reading circle.

BOARDS OF EDUCATION

♦ Flint, Mich. The board of education, after a long discussion, has voted to discontinue secret meetings, ending a practice which has been in operation for a number of years. The board has adopted a new policy, suggested by John L. Pierce, a member, calling for two meetings a month, both public. One meeting takes the form of a committee-of-whole meeting on the Monday preceding the regular monthly meeting.

♦ New Orleans, La. A survey of the public-school system has been ordered by the board of education. The survey, which is to begin in February, 1936, will be completed at a cost of approximately $10,000. It will be conducted by a national agency, in conjunction with the bureau of governmental research.

♦ El Paso, Tex. The board of education has voted to ask the city council to underwrite $6,000, representing the expense for installing new drinking fountains and toilets in buildings where these facilities are antiquated and unsuitable. It was asserted that some provision ought to be made for increasing the janitorial service so that the schoolrooms, halls, and lavatories may be kept decently clean and attractive.

♦ Monson, Mass. A petition has been circulated for a special town meeting to obtain approval for a change in the membership of the school board. It is desired that the membership be reduced from six to five. Objection has been made to the present even number of members because it has frequently resulted in a deadlock on questions before the board.

♦ Minneapolis, Minn. The board of education has ordered the appointment of a special committee to make a study of means of eliminating politics from the city school system. The action is the result of a discussion over the activities of Director Lynn Thompson and the junior taxpayers' association within the teaching ranks.

♦ Parkersburg, W. Va. A school nutrition program has been put into operation in the public schools, under the direction of Supt. John A. Davis, Jr. The program is intended to finance daily hot lunches for from 1,200 to 1,500 school children and is being financed with a WPA grant of $10,000. The food to be served will be selected for its nourishing character and will be prepared at designated school centers. Thirty-one women have been employed as cooks.

♦ El Paso, Tex. The board of education has authorized Supt. A. H. Hughey to begin work on a program, providing for a twelve-month school year in four elementary schools where overcrowded conditions have limited the students to part-time schedules. The inauguration of the new year-round school term will require an agreement on the part of the forty teachers affected to a change in their vacation schedules.

Under the arrangement, school terms will begin quarterly, and will involve the operation of four different classes, each in operation for three terms a year. No additional teachers are contemplated under the new program.

♦ Dallas, Tex. The school board has voted to retain its regulations governing fraternities and sororities in the schools. It was voted to give no approval to social organizations, except those sponsored by the schools and those directed by the parent-teacher groups. Students who fail to sign a pledge of obedience are barred from all school activities, including plays, clubs, and student organizations.

♦ Woodbury, N. J. The board of education has adopted a new policy, providing for the encouragement of the use of school buildings by other than school organizations. Under the policy, each organization is charged the actual cost of operation of the plant, including the light, heat, janitor service, and adequate protection. The parent-teacher association and the various activities included in the extracurricular program are exempt from these charges. Rentals for extras, such as the use of spotlights, piano tuning, etc., are made in connection with the general charge.

♦ Grand Rapids, Mich. Evening classes have been established on a self-sustaining basis for all subjects not supported by Smith-Hughes funds.

♦ Washington, D. C. The board of education has voted to make a study of the school textbooks, to determine whether they contain references to communism. The action was taken after representatives of the local federation of citizens' association had attacked three textbooks and eight other books recommended for use in the senior high schools. The board has adopted a rule requiring school employees to pledge that they have neither taught nor advocated communism before they may collect their salaries.

HAMDEN HIGH SCHOOL

DIXWELL AVENUE—HAMDEN, CONNECTICUT

November 21, 1935.

Mr. Willis D. Rich, President
Deskor Chair Sales Corporation
Park Square Building
Boston, Massachusetts.

Dear Mr. Rich:

I am very glad to know that you were so well pleased with the memorial booklet of the High School.

You will also be glad to know that our experience with Deskor chair continues to fortify our confidence in this very ingenious piece of classroom furniture which you have devised.

My experience with Deskor chair as you know dates back to 1929 when we made an installation in the assembly hall of the Norwalk High School. I don't know what we would have done without it, considering the conditions under which we had to work there. It solved that problem very beautifully, providing us with adequate study facilities and auditorium seating at the same time.

Our use of it here in this building is proving itself very effectively. We use the two rooms interchangeably for class activities, study hall and assembly for groups up to 160 and are finding the units as usual flexible and durable. I am more firmly convinced than ever that this equipment is indispensable to a modern school installation, and very happy that we were able to have it in the new Hamden High School.

From all reports, the installation which you made in Newton, Massachusetts, in 1934 is working out most satisfactorily.

Cordially and sincerely yours,

JL/B John Lund, Organizer.

DESKOR CHAIRS

permit

Unusual Flexibility in Administration

and

Make Dual Use of School Space

"DESKOR" increases the capacity of existing buildings and reduces the per pupil cost of new buildings.

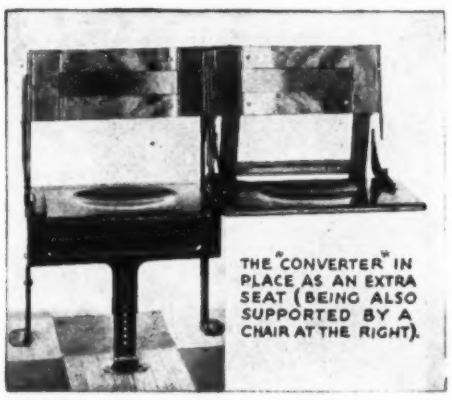
During the past eight years "DESKOR" installations have been made varying from 20 to 500 desk locations in a single room, permitting instant conversion into assembly formation, seating from 40 to 1000 persons.

"DESKOR" is adaptable to any type of floor or room.

In addition to installations in numerous other cities, DESKOR CHAIRS were installed in the following Boston schools during the past six years:

Public Latin (Auditorium)
Gibson Elementary (Auditorium)
Pierce High (Auditorium)
Memorial High (Study Hall)
Taft Junior High (Auditorium)
Jamaica Plain Sr. High (Auditorium)
Jeremiah E. Burke Senior High (Auditorium, 1,000 "Deskor" seats)
Mechanic Arts High (Auditorium and Physics Room)
Barnes Elementary (Auditorium and one Classroom)
Dorchester Senior High (Auditorim and Lecture Room)

An entire room can be changed by the pupils from one use to the other in less than one minute



If you will send us the dimensions of any room we shall be glad to tell you what dual service DESKOR can render.

DESKOR CHAIR SALES CORPORATION

Park Square Building **BOSTON, MASSACHUSETTS**

("Deskor" registered in U. S. Patent Office)

The Modern TVA *Electrically Heated* School Building at Norris, Tennessee

(Concluded from Page 42)

conferences possible without disturbing those who are reading. The attractive, substantial furniture in the library was made in the practical, efficient TVA trade schools where the high-school boys take their manual-training work.

There is a home-economics laboratory in the school but much of the practice housekeeping is carried on in the town's demonstration cottage, where all types of electrical labor savers are put into practical use in order to encourage the liberal use in the homes of cheap current available from the Norris Dam.

The administration and medical department are located on the first floor, making the principal's office conveniently located for the teachers and visitors as well. The medical room has the necessary equipment for detailed physical examinations of the pupils. There is a bath, as well as a toilet in connection. A nurse, always available for any emergencies, checks up each day upon the health of the children in the nursery school.

There should be the minimum amount of eye trouble in this school, for there can be no eye-strain due to poor light. All artificial lighting is of the indirect type, soft and restful, yet sufficiently strong for schoolwork, as tested by a sight meter. No one ever "forgets" to turn on the lights on dark days as a so-called "electric eye' (consisting of three photo-electric cells located in the north, east, and west rooms near the windows) automaticaly turns the lights on when the daylight registers 15 candle power or less and turns them off again when the light is of the intensity of 20 candle power.

The building is electrically heated. The cost of its operation compares favorably with coal at $5 a ton, not taking into consideration the expense saved in not having to clean soot from the walls, and renew soiled draperies, as well as the favorable effect of this "smokeless" atmosphere upon the health of the children and faculty. There should be fewer colds in this school because of the humidity provided by an electrically generated steam jet. (The main heating system is of the plenum type.) According to Mr. Draper, the air is blown "by means of a fan through an electrical heating chamber consisting of a series of resistance coils." The warm air is circulated to the various rooms by means of ducts. Most of it is sent back to the system, with the exception of the air from the laboratories and toilets which is sent directly out of doors to eliminate odors. A certain amount of fresh air (regulated according to the temperature out of doors) constantly enters a duct coming from an opening in the roof. A few of the smaller rooms, such as offices, are heated by means of the "unit-type electric radiators to avoid complicating the system."

A rather unique feature of the school is that the teacher of athletics serves both as instructor and "engineer" (the latter is a "white collar" job, consisting mainly of turning on switches and regulating the fresh-air supply by means of levers instead of shoveling coal and carrying out ashes). The hot-water supply is also heated electrically by the so-called "immersion" type heaters in tanks or boilers.

THE LIBRARY, PUBLIC SCHOOL, NORRIS, TENNESSEE

ONE OF THE CLASSROOMS, PUBLIC SCHOOLS, NORRIS, TENNESSEE

SCHOOL-LAW DECISIONS

Compiled by Patrick J. Smith, of the Indiana Supreme Court Library

The power of a county superintendent of schools to transfer teachers under acts 1933 (1st Extraordinary Session) may be used only for regulation and in emergencies, the Supreme Court of Appeals of West Virginia has held.

"Contracts for teaching schools are entered into subject to the exercise of the power conferred on the county superintendent of schools by Acts of 1933. That power, however, may be used only for regulation and in emergencies. Even then, it must be exercised in a reasonable manner. The best interests of the schools must be intended. Arbitrary or capricious use of the power will not be tolerated. The presumption of good faith which is ordinarily accorded an official act cannot prevail in this case. No change in the school conditions of Putnam County between May 6 and August 20 (the two meetings of the board) is asserted. The wholesale shifting of teachers on August 20 is alone sufficient to shake the presumption of good faith, and the presumption falls before the uncontroverted evidence of Neal and Miller. With that presumption prone, and the motives of the board for changing Neal impugned and not defended, we must conclude that the change is without justification." *Neal* v. *Board of Education of Putnam County et al.* (181 S.E. 541. Sept. 17, 1935.)

Succession in Superintendency

Can a superintendent of public instruction hold over in his office when his duly elected successor dies after taking the oath of office but before his term commences? Or, is there no vacancy such as to permit an appointment?

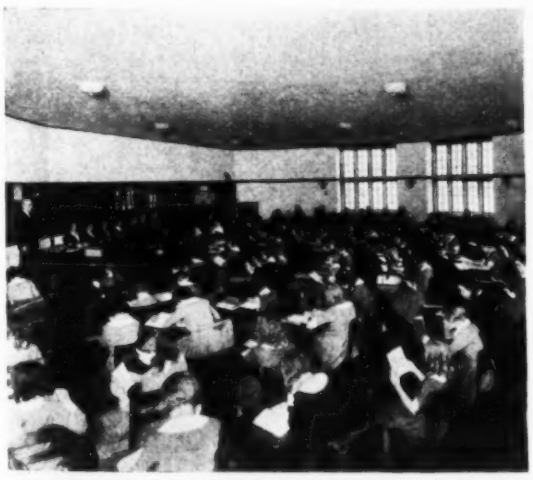
In the case of *Toy, Attorney General, ex rel Elliott* v. *Voelker* (262 N.W. 881), the Supreme Court of Michigan said: "The constitution provides: 'A superintendent of public instruction shall be elected at the regular election to be held on the first Monday in April, nineteen hundred nine, and every second year thereafter. He shall hold office for a period of two years from the first day of July following his election and until his successor is elected and qualified.'"

Maurice Keyworth, who was elected to succeed Voelker, died June 22, 1935, two days after having taken the oath of office. The Governor deeming the office vacant, appointed Eugene Elliott on July 1. Elliott qualified and demanded the office. Voelker refused to vacate on the ground that no vacancy had occurred for the reason, that to qualify, his successor should have given bond which he did not do before he died.

"The words 'and until' in the holdover clause carry a permission but not a command of futurity; that is, they include but do not require the election and qualification of a successor, or either, to follow the ending of the incumbent's fixed term. If election and qualification of a successor should, or must, follow expiration of the fixed term, . . . the incumbent would step out of the office only when the successor steps in because such result would automatically follow qualification of the elected successor. But such situation cannot govern this case because the Constitution does not provide for such subsequent election. On the contrary, it requires the election to be held in April preceding end of the incumbent's fixed term, and it establishes the constitutional oath as the only act of qualification, and permits it to be taken before an elected officer's term begins . . . moreover, no other qualification was then required by statute, and, from time immemorial, elected officers had been permitted, and sometimes required, by statute to qualify before their terms began. The provision therefore permits both election and qualification of a successor before the end of the incumbent's term, and requires no further act to be

(Concluded on Page 66)

SUBDUE NOISE WITH ACOUSTI-CELOTEX



The Friends School in Baltimore, Md., is typical of the many modern schools employing Acousti-Celotex to provide the quiet that aids teachers in their work.

No one will seriously deny the many important strides that have been made in educational methods and equipment. Yet, in many schools, noise is hindering teaching today just as it did in the days of the old-fashioned slate.

Today, the modern school is a quiet school equipped throughout with Acousti-Celotex Sound Absorbing Tiles for subjection of noise and for acoustical correction.

The installation of Acousti-Celotex in corridors, gymnasiums, cafeterias and other noise sources contributes to discipline, aids teachers, reduces confusion and disorder.

In auditoriums, music rooms, lecture rooms, Acousti-Celotex provides clearer hearing, induces concentration, makes possible profitable attention.

Acousti-Celotex is inexpensively installed in existing ceilings—permanent—paintable—adaptable to various decorative designs—economically maintained. Four types cover the entire range of sound absorption.

Your local Acousti-Celotex Contracting Engineer, listed in the telephone directory, is an authority on noise control and acoustical correction. He'll be glad to furnish recommendations and estimates. Consult him. Or, write direct.

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Quiet is Essential to modern Teaching

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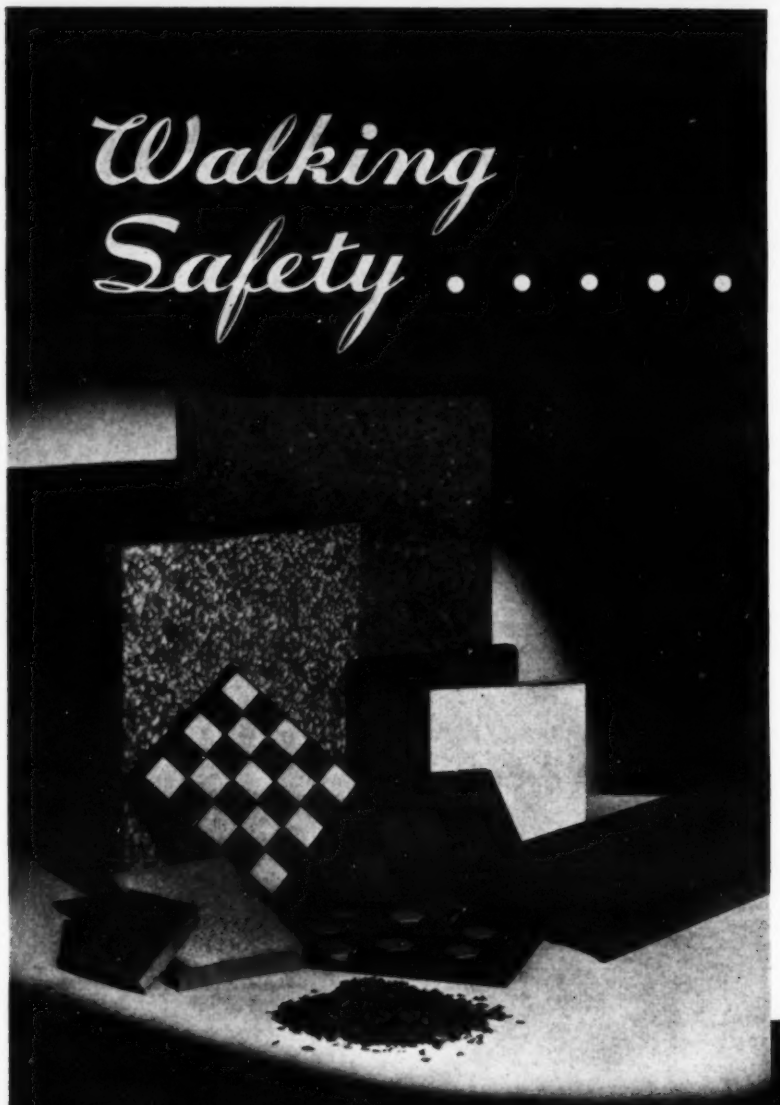

For All the School Building "Danger Spots"

FOR every place in the school building where there is a slipping hazard there's a Norton Floors product. Stairways may be made permanently safe with Alundum Stair Tile, Alundum Aggregate in terrazzo or the Alundum Rubber Bonded Safety Tread. This last product is ideal for stairway maintenance in old buildings as well as for new buildings.

For showers, lavatories, wash rooms, entrance vestibules and similar places Alundum Ceramic Mosaic Tile may be used or Alundum Aggregate in terrazzo . . . both are non-slip when wet. For cement floors and stairs there is Alundum (C. F.) Aggregate.

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ALUNDUM TILES—TREADS—AGGREGATES

(Concluded from Page 64)

done or condition to exist to nullify the holdover position." Oct. 24, 1935. (Potter, C. J., Bushnell and Edward M. Sharp, JJ., all dissent with opinions.)

Teachers' Permanent Tenure

In the case of *Whitlatch* v. *School Town of Milan* (198 N.E. 85), the Indiana Supreme Court held advisory, a provision in the Tenure Statute to the effect that no teacher could become a permanent teacher until the school superintendent shall have made a report upon such teacher's preparation, experience, and license.

" 'The duties growing out of section 3 of the Tenure Act are duties devolving solely upon the superintendent and the employing officials with a view of obtaining the skilled advice of the superintendent in the case of all employment contracts. Even so, however, the section must be treated as advisory only since no method is provided for enforcing it, unless it be to declare the teacher's contract invalid in the event the employing official fails to comply with the section by making the request for and receiving the advice as to the teacher's preparation, experience, and license. I do not think it was the intention that a teacher with a duly registered license should thus be penalized for the failure of the employing official.' . . .

The Teachers' Tenure Act is based upon the public policy of protecting the educational interests of the state and not upon a policy of granting special privileges to teachers as a class or as individuals. (*Alice Robinson* v. *School Town of Milan* — same facts — 198 N.E. 87. Nov. 1, 1935.)

Funds for Educational Uses

A fund given for the purpose of establishing a seminary of learning can never be used for anything else. This was held by the Supreme Court of Iowa in the case of *McColl* v. *Dallas County* (262 N.W. 824. Oct. 15, 1935).

"This fund was accepted by the County of Dallas under the conditions named, with a pledge upon the part of the board of supervisors of the county that the trust thus imposed would be carried out by the county as indicated by the instruments donating the fund. . . . We cannot escape the conclusion that this fund became a part of the school fund of Dallas County, and that it can never be used for any purpose other than the establishment of a seminary of learning as provided by the terms of the gift."

Schoolbook-Contract Binding

A contract for the furnishing of schoolbooks resulted when the publisher signed and returned a contract sent by the secretary of schoolbook commission where there was nothing to indicate that the commission's action was not final or that it should also sign a writing.

"The commission said nothing about signing the copy retained for its files. There is no fact or circumstance tending to show the commission considered the subject of adoption of plaintiff's books remained pending as unfinished business, leaving legal obligations to hang in the air. In the absence of express agreement there shall be no contract until a writing has been prepared and signed, the question is not what the commission had in mind, but what its objective manifestations were, and in this instance there is no room for a finding other than that the bargain was complete although the commission did not sign." *Mentzer, Bush & Co.*, v. *Schoolbook Commission of the State of Kansas* (49 Pac. 2nd. 969. Kan. Oct. 5, 1935).

Delinquent School Taxes Are Not Assets

In determining the amount of the net existing indebtedness of a school district, delinquent taxes in process of collection may not be considered and used as an asset of such school district, the Supreme Court of Oklahoma has held. *Mannsville Consolidated School District No. 7, Johnston County* v. *Williamson, Atty. Gen.* (49 Pac. 2nd. 749. Oct. 1, 1935).

"An examination of the decisions of other states having similar constitutional provisions with reference to debt limitations discloses a sharp conflict between them. The better reasoned cases hold that only cash on hand and available assets and resources readily convertible into cash should be considered deductible assets and subtracted from the outstanding indebtedness. To us this seems the better rule. Delinquent taxes are not readily convertible into cash. Nor do our statutes under which the collection of delinquent taxes can be enforced insure the collection of such taxes in cash. Property sold to the county at the annual tax sales, for lack of individual purchasers, may be resold under our statute; but if at such sale it cannot be sold to individual purchasers, the county becomes the purchaser and owner in fee of the property sold for delinquent taxes, and the taxes are canceled. Such property does not become assets of the county, or of the school district in which the property may be located, that may be considered in determining the net indebtedness of such county or any municipal subdivision thereof. Nor are the proceeds of sale of such property, if and when sold by the county, allocable to the payment of the warrant indebtedness of the school district or other municipal subdivision of the county.

"School districts and other municipal and political divisions of the state should pursue a sound business policy in their fiscal management. To consider as assets delinquent taxes which are not only not readily convertible into cash but are improbable of collection violates that policy, and in our opinion violates the laws of this state."

Knowledge of Rules

A teacher, who has been furnished with the rules and regulations of a school board, or who has knowledge of such rules, contracts in the light of them and is governed thereby.

The Missouri Appellate Court made this ruling in the case of *Strayhorn* v. *Blodgett Consolidated School District No. 35 of Scott County* (86 S.W. 2nd. 374. Oct. 7, 1935).

At a teachers' meeting on April 6, 1933, all the teachers, including appellant, being present, it was announced that the board of directors had adopted the following regulation: "That no married ladies, who have husbands, shall be employed or permitted to teach in the school system for the ensuing term of 1933–1934." The appellant executed her contract of employment on the 12th day of May. . . . She was married to Mr. Strayhorn on August 12, 1933.

"While the statute does not provide that a copy of the rules and regulations should be furnished to the teacher, in writing, yet this would be the safest method for the school board to pursue. However, it is our opinion that if a teacher has actual knowledge of a rule or regulation of a school board, before the contract is entered into, that the purpose of the statute would be served and that the teacher who has actual knowledge of a rule and regulation and violates it cannot thereafter complain that the rules and regulations were not furnished. The statute provides that the rules and regulations shall be furnished to the teacher. This is to notify the teacher of the rules and regulations. If a teacher knows of a rule or regulation, then no useful purpose could be served by furnishing such teacher with the rules and regulations.

"We therefore hold that in a contract of employment between a school board and a teacher, the rules and regulations are a part of the contract, where the teacher has been furnished with the rules and regulations of the board, or has actual knowledge of such rules."

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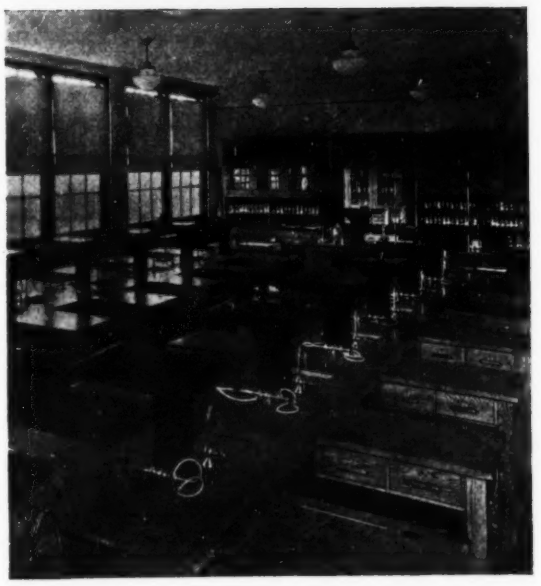

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School Administration Notes

♦ New Bedford, Mass. The board of education has voted to continue the special instruction for handicapped children. Two teachers are in charge of the three hours of instruction. A total of twelve children are enrolled.

♦ Supervision of classroom instruction has been started this year in the schools of El Paso, Tex., in order to provide the classroom teachers with assistance and direction, in whatever ways such assistance and direction may be necessary, so that they may obtain the maximum educational results with their pupils with a minimum expenditure of effort, time, and money by everyone concerned.

♦ The public-school system of Owatonna, Minn., working in co-operation with the University of Minnesota, and utilizing a grant from the Carnegie Foundation, has begun an extensive study in the field of art. As a result of the study, work has been begun on a new type of art curriculum, extending from the kindergarten through the twelfth grade.

The study, which is now in its third year, is under the direction of Mr. Edwin Ziegfield, supervisor of art. A new approach to the problem of art instruction is being sought and is receiving experimental treatment in the schools. Adult art education is a part of the study.

♦ Owatonna, Minn. Intramural extemporaneous speaking and sight interpretation reading have completely supplanted the old-type declamatory contest in the public schools. Nearly 500 pupils in the senior high school participated in some form or other in this new-type activity last year.

♦ The legislative committee of the Michigan Education Association has begun a study of the present status of education in the Upper Peninsula of Michigan. The study is being conducted by a committee of northern Michigan educators, of which Supt. M. E. Dunn, of Vulcan, is chairman. The purpose of the survey is to determine whether an adequate educational program can be provided with present sources of income and to find administrative practices which will permit economy without affecting the efficiency of the educational program.

In addition to school curriculum, the study will gather information concerning teachers, number of periods taught by teachers, textbooks, janitorial service, school lunches, and insurance.

♦ Ottumwa, Iowa. The board of education has approved a plan to use boys as safety patrols at street crossings near schools. The plan is operated under the national youth administration and provides for the use of street signs and special programs to be conducted in each school in the city. The city council has cooperated by designating safety signs adjoining public schools.

♦ A total of 1,288 one-teacher schools still exist in New York State, with an average daily attendance of ten or less, and 245 with an attendance of five or less, according to a statement recently made by Dr. Robert Whitten, consultant of the New York State Planning Board. It was brought out that a large number of these schools are located in the hill districts, where farm-abandonment has been in progress. There are practically none in the forest areas of the Adirondacks and the Catskills.

The cost of a one-teacher school, it was stated, is about $1,500 a year, regardless of the number of pupils in attendance. The cost per pupil is four times the average cost in the state when the school has five or fewer students, and twice the average when there are from six to ten pupils in attendance.

♦ New York, N. Y. The proposed revision of the pupils' report cards used in the elementary schools of the city, will be delayed until September, 1936, according to an announcement by Mr. John K. Bolen, superintendent of the elementary-school division. The new report card is being used experimentally in a number of schools throughout the city. It is planned to simplify it before its adoption for general use throughout the city.

♦ The cost and character survey of the New York State educational system, recently authorized by the New York Board of Regents has been commended by the State Teachers' Association as paving the way for better educational standards in the future.

The survey was described by Dr. Frank P. Graves, State Commissioner of Education, as marking the beginning of the most significant educational advance of the century in America. Dr. Luther H. Gulick, of New York City, is directing the survey.

♦ Columbus, Ohio. An expanded plan of supervisory administration has been inaugurated in the public schools in connection with the appointment of two new assistant superintendents. The plan calls for one assistant superintendent to supervise junior and senior high schools, while the other has been given charge of elementary schools. Assistant Superintendent L. D. Shuter will continue as supervisor of maintenance and service activities as well as athletic supervisor.

♦ Toledo, Ohio. A new type of report card has been put into operation for use in the elementary schools and junior high school. Under the system, no cards are issued to pupils in the kindergarten, first, second, and third grades. For pupils in the first, second, and third grades, the teachers are urged to watch the progress of each child in citizenship, health, reading, spelling, language, writing, arithmetic, social studies, nature study, music, and art and to report to the parents when a child fails to make proper progress. In the case of children in the fourth, fifth, and sixth grades and junior high school the standing of the pupil is designated as above average, below average, and failure.

♦ Washington, D. C. Payment of salaries or wages to any school employee who teaches or advocates communism in or out of the schools is forbidden, under a recent ruling of Comptroller General J. Raymond McCarl. The ruling is sufficiently broad to include janitors and all other employees of the school system.

♦ Fitchburg, Mass. The school board has voted to change the rule governing the method of payment of teachers. The rule which becomes effective during the 1936–37 school year reads: "Teachers receiving a yearly salary shall be paid in as many weekly installments as there shall be weeks in the school year, beginning with the opening of school in September. If a teacher is employed a part of the school year only, the compensation of such teacher shall be in proportion to the time of service."

♦ The public schools of Grand Junction, Colo., during the year 1935, had a total enrollment of 3,259, of which 1,599 were boys and 1,660 were girls. Two schools had an enrollment of 500 pupils or more, two an enrollment of 300 or more, and two an enrollment of 200 or more pupils. During the year 1935, 85 per cent of the pupils attended school regularly, as compared to 75 per cent in 1920, and 69 per cent in 1900.

♦ Chillicothe, Ohio. The school board has authorized Supt. M. M. Berry to make arrangements for a class for crippled children. The class will draw its membership from 14 children in the city and 12 in the county districts.

♦ Consolidation of state boards governing education to eliminate inefficiency, confusion, and uncertainty, has been advocated recently by State Superintendent Clyde A. Erwin, of North Carolina. Mr. Erwin contends that one governing board of education for the state would increase efficiency for meeting present needs, and would prove a flexible unit for the state's expansion. A twelve-year school plan, with higher pay, higher professional standards, and a master teaching certificate for teachers, was recommended.

♦ Chicago, Ill. The board of education has voted to provide an American flag for permanent use in each of the 11,000 classrooms of the school system. The board recently adopted resolutions requiring the display of the national emblem in each classroom.

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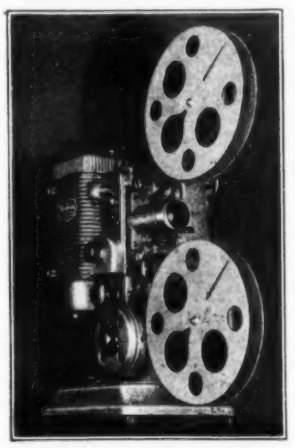

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NEW BOOKS

The Relationship of City Planning to School Plant Planning

By Russell A. Holy, Ph.D. Cloth, 144 pages. Price, $1.50. Teachers College, Columbia University, New York City, N. Y.

This study is predicated on the simple truth that neither city planning nor school-plant planning can be considered adequate unless each considers the other. The author has found that city planners have given but little attention to the school; they have cheerfully ignored it or simply looked upon it as one of those features which must be fitted in after all the major problems of residential areas, streets, etc., have been solved. He has also found that school planners have been equally careless of the city plan, considering it either as a fact which cannot be altered or as a troublesome minor annoyance to be adjusted to the school plant and to the wishes of the school administration. As the reader will learn in the course of the eight chapters of this dissertation, both city planning and school-plant location are complicated undertakings closely related and interdependent and affected by many social, economic, and aesthetic considerations. Co-operation of all public authorities interested and continuous expert study from both the viewpoints of the municipality and of the schools are needed for success over any long period of years.

After tracing in detail the history of city planning and school-plant planning, the author examines the elements of a successful city plan which have a bearing upon school-plant location and planning. These are the major street system, transportation and transit, zoning, civic art, and public recreation. The school man may well judge any proposed city plan as this affects the schools on the basis of eight criteria:

I. The plan anticipates as fully as possible the future development of the city with reference to probable centers of population, thoroughfares and transit lines, the location of residential, commercial, and industrial districts, and public parks and playgrounds.

II. The city plan provides for or makes possible the location of schools on sites combining minimum of hazard and maximum of accessibility in environment conducive to good education.

III. Schools are recognized as an important element in the aesthetic aspects of the city.

IV. The school plant occupies a central place in the planning for the recreational and cultural life of the community.

V. Wherever feasible municipal playgrounds and parks are correlated with school playgrounds.

VI. Accepted standards with regard to location and size of site and playgrounds as well as such policies of the board of education which have a bearing on the school-building program are considered in the city plan.

VII. The city plan provides for, or facilitates, the execution of a school-building program that combines both adequacy and economy.

VIII. The City Planning Commission and the board of education co-operate in the development of both the school plant and city programs, and there is an exchange of pertinent information between these two planning groups.

From the standpoint of the city planning department of a municipality the school-plant planning may be considered successful only if it is consciously fitted into a comprehensive city plan as the first point of reference. "Since school buildings are probably the most numerous of all public structures, it is necessary that their location be considered in relation to the major elements of city planning.

"School building programs to be sound from the point of view of city planning should be drawn up in accordance with the specifications of the city plan. . . . School plant planning should be done in accordance with existing zoning regulations. In many communities school building surveys have been carried on in the absence of a city plan. They are without a sound foundation as has been pointed out in previous paragraphs. Likewise, the major street plan and the proposed location of municipal playgrounds and parks constitute factors upon the basis of which the schools should draw up their program. While it is not within the province of a City Planning Commission to dictate to the board of education just where to locate future school sites, school authorities who do not avail themselves of the information concerning the future development of the city can hardly be expected to draw up a valid school building program."

The author rightly concludes that the city plan and the local zoning ordinances are basic to every school-building survey and must be guiding and limiting considerations in the continuous school-plant program. For mutual success the city planning authorities and the school officials must work in close harmony and with a thorough understanding of each other's objectives and problems. In cities where this idea has been tried, notable success has been achieved with economy and satisfaction as the leading outcome.

Not the least important chapter in the book takes up the future of city and school-plant planning and suggests, too conservatively perhaps, the problems which will arise from the slowing down of population, the changes of newer transportation methods, regionalization, and similar vast evolutionary developments that can hardly be foreseen.

The author makes five rather modest recommendations for improving planning:

1. It is within the sphere of competency of the school authorities to initiate city planning and zoning movements.
2. The school needs of the community should constitute a principal consideration in the preparation of any city plan or zoning scheme.
3. The city plan and zoning regulations should function as the framework for the school plan.
4. The activities of the zoning and planning authorities on the one hand and of the school authorities on the other should be carefully co-ordinated.
5. Provision should be made for easy exchange of all items of information which can be prepared by one planning body and which are needed for the proper functioning of the other.

The most practical pages of the study include these items of information which school authorities and municipal planning commissions should exchange:

INFORMATION CITY PLANNING COMMISSIONS SHOULD SUPPLY BOARDS OF EDUCATION

Items bearing on future development of city:
- *a.* A list of proposed developments of city.
- *b.* Contemplates extension of city limits.
- *c.* Average size of lots in new developments.
- *d.* Map showing unoccupied land.

Trends in present development of the city:
- *a.* Building permits issued.
- *b.* Real estate development in certain areas.
- *c.* Construction of new homes by wards or other areas.
- *d.* Trends in real estate prices in certain areas.
- *e.* Zone map of city showing industrial, business, and residential areas.

Items bearing on population shifts and changes:
- *a.* Information as to probable character of population changes.
- *b.* Map showing births by wards or other areas.
- *c.* Population figures by age groups in different sections.

Items helpful in locating schools with reference to other elements of the city:
- *a.* Plan showing all existing thoroughfares and streets, with proposed highways and street plan.
- *b.* Map showing existing and proposed transportation lines.
- *c.* Information on flow of traffic.
- *d.* Map showing location of all parks, playgrounds, recreational centers, and public buildings.

Items bearing on natural features of the city:
- *a.* Contour map of city.
- *b.* Geological data on formation of soils with reference to foundations.
- *c.* High water levels of all regions subject to floods.
- *d.* Earthquake fault lines, if any, mapped and charted.

INFORMATION BOARDS OF EDUCATION SHOULD SUPPLY CITY PLANNING COMMISSIONS

Items bearing on present plant and its use:
- *a.* Location of each school.
- *b.* Date of erection of each school building and additions, if any.
- *c.* Seating capacity of each building.
- *d.* Unused seating capacity available.

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e. Number of rooms in each building and their use.
f. Floor space of the building.
g. Grades using each building.
h. Area of playground space for each school in acres.

Items helpful in locating other elements with respect to schools:

a. Map of city showing boundaries of school districts.
b. Plan of each existing school site showing the location of buildings and playgrounds.
c. Number of auditoriums and gymnasiums provided in the schools.
d. Location of unused school sites owned by the school district.

Data bearing on policy of the Board of Education:

a. Policy as to type of organization of each school.
b. Established policy as to number of pupils per teacher in grade school.
c. Information as to whether or not playgrounds are supervised by school authorities during the entire year.
d. Information as to whether school playgrounds are available for adults and children when school is not in session.

Data bearing on status and trends of school population:

a. Average daily attendance of schools.
b. Total enrollment by grades in each school.
c. Total enrollment by parochial and private schools.
d. Dot maps showing location of all elementary, junior, and senior high school pupils.
e. Total enrollment of schools by grades and divisions for at least ten years.
f. Percentage that school population is of total population during each year over a period of twenty years.

Other items:

a. School indebtedness.
b. Location and number of all parochial schools.

Federal Student Aid Program

By Fred J. Kelly and John H. McNeely. Paper, 39 pages. Price, 5 cents. Bulletin No. 14, 1935, U. S. Office of Education, Washington, D. C.

A report on a federal-aid program in which large administrative responsibility is placed upon the colleges. Inaugurated by the Federal Emergency Relief Administration, the plan provides financial aid to qualified young men and women who lack sufficient funds to attend college. Under the plan, students are required to perform actual work on a part-time basis in return for the money paid them by the government. There appears to be unanimity of opinion that the program is accomplishing its main objective of providing opportunity for young men and women to attend college who could not otherwise do so. Various other values of the program both to students and colleges are emphasized. A total of 75 institutions have expressed the conviction that the federal program is one of the most successful recovery measures undertaken by the government. Ten colleges stress the cheapness of the program as a form of relief for the youth of the country. While some of the other institutions made direct criticisms of the plan, the great majority of them offered suggestions for changes which would improve the operation of the program in their own buildings.

The Psychology of Getting Grades

Anonymous. Boards, 96 pages. Published by Lucas Brothers, Columbia, Mo.

While this book contains some useful information on the selection of courses and the choosing of professors, it should never have been printed. Its main theme is to show how preparation may be made for getting good grades with a minimum of study. The ideal is to "get by," and for this purpose any means in the author's estimation, justifies the end.

Municipal Debt Administration

Prepared by a special committee of the Municipal Finance Officials' Association, Chicago, Ill.

An important study of the entire problem from the standpoint of the administrative officials of the leading cities.

Story Book of Wheels, Ships, etc.

By Maud and Miska Petersham. Cloth, 128 pages. Price, $2.50. John C. Winston Co., Philadelphia, Pa.

This story of travel from the earliest development of wheels to the latest forms of ships, trains, and aircraft is an achievement in artistic bookmaking. It is gay, colorful, and intensely interesting to children at their most impressionable age. The text is simple and informational.

Reducing Pupil Failures

A report of a study, prepared by Mr. Ernest A. Harding. Paper, 55 pages. Price, 60 cents. Issued by the New Jersey Elementary Principals' Association at Trenton, N. J.

Why do pupils fail? What ought to be done about it? What is being done to remedy the situation? These questions provide the framework for this study on "Reducing Pupil Failures," a report of a study undertaken by the New Jersey School Principals' Association, in co-operation with the New Jersey Department of Public Instruction.

Contributions from 24 New Jersey principals and other educators show a wide range of practice in New Jersey schools in the failing of pupils. One principal reported the failure of only 2 out of 440 pupils, while another declared that children should be taught to accept failure with joy in the heart and thanksgiving on the lips. He held that those who have never felt the depths of defeat will never know the thrill of victory.

The study reveals that there are more over-age pupils in the seventh and eighth grades than there were in 1927, which is attributed to the increase in age and grade requirements for working papers and the lack of employment for youth during the depression. There appears to be a changing philosophy toward nonpromotion, which has effected a noticeable reduction in the number of nonpromotions.

Story Pictures of Farm Foods

By John Y. Beatty, Cloth, 192 pages. Price, 70 cents. Beckley-Cardy Company, Chicago, Ill.

Here is an attractive supplementary reader in which the urban child is introduced to farm life and is told of a hundred food items, their manner of production and handling until they reach the city table. For first and second grades, the book approaches the ideal in objectives, diction, typography, and illustrations.

The Catholic High-School Principal

By Francis M. Crowley, A.M., Ph.D. Cloth bound, 253 pages. Price, $2.50. The Bruce Publishing Company, Milwaukee, Wis.

The impetus which secondary education has experienced during the last two decades in the United States is reflected in the increased number of private as well as public high schools. During the period named, the number of Catholic high schools has grown from 1,276 to over 2,200. The number of students has more than trebled. From 74,538 in 1915 the number has risen to approximately a quarter of a million.

The author not only discusses the essential qualifications for leadership in secondary education but seeks to discover in what particulars the Catholic high school may differ from the corresponding public school. Thus, he presents comparative studies in matters of experience, training, and professional preparation, all of which are highly instructive. There runs through the volume the well-defined objective to maintain professional standards that will achieve the highest service in the field of secondary education.

In making comparisons between the public high-school principals and those employed in the Catholic high schools, the author finds some striking differences as well as an unexpected degree of similarity. While the Catholic high-school principal usually has behind him a longer training in higher institutions of learning, the training programs of public high schools "are distinguished by greater continuity and definiteness."

The Catholic high-school principalship is largely a career for women, but men usually serve as principals in the larger schools. The salary paid does not have much bearing on the problem of professional advancement "since the religious motive is the dominant element in the life of the religious teacher."

Three chapters are devoted to the principal as administrator and supervisor. Here the author discusses the organization of a high school, teachers' meeting, the distribution of the principal's time, his teaching duties, office administration, etc. The final chapter discusses the question of "How to Professionalize the Principalship."

The book is provided with generous summaries and references.

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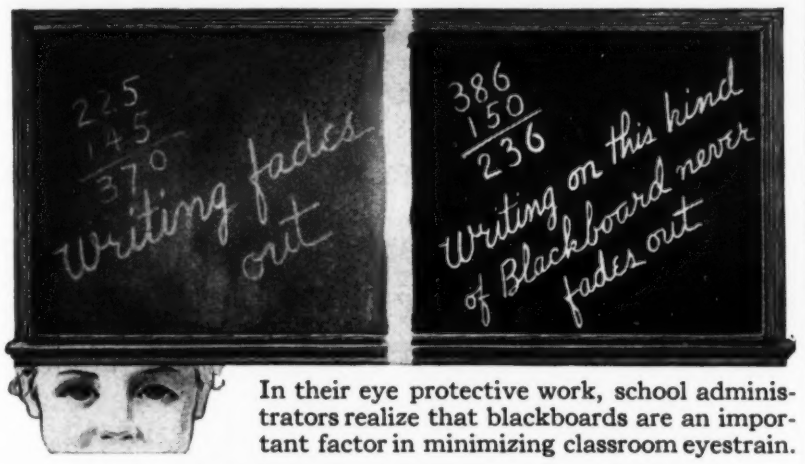

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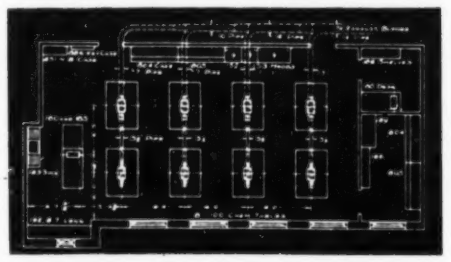

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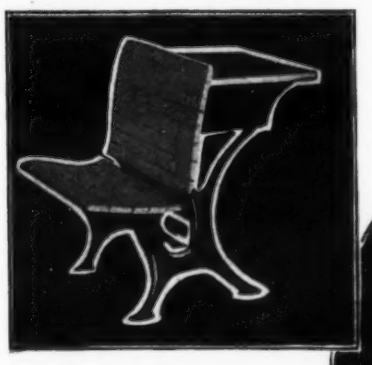

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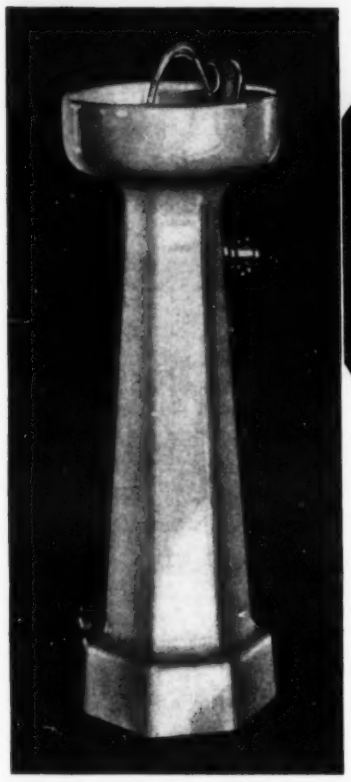

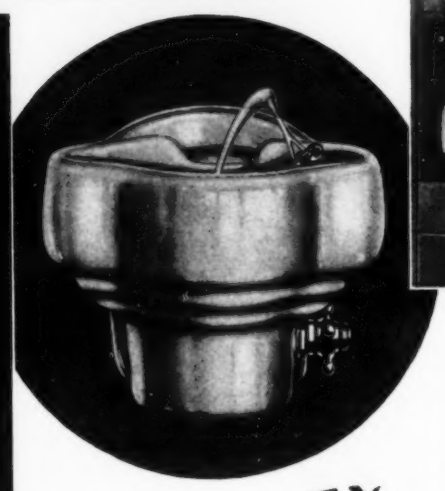

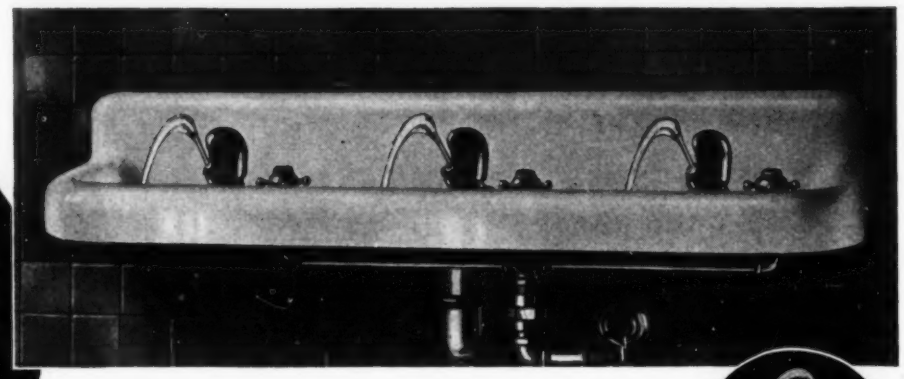

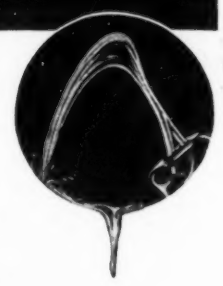

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Teachers' Salaries

FAIRFIELD ADOPTS SALARY SCHEDULE

The board of education of Fairfield, Conn., has adopted a salary schedule for employees of the board, excepting the superintendent, the assistant to the superintendent, the superintendent of buildings, janitors, supervisors, and special teachers.

Under the revised schedule, full-time female teachers will start at a minimum of $1,000 a year for a probation period of two years. Beginning with the third year in the schools, the annual increase of $1,000 a year will be given for six years until the maximum of $1,600 is reached. Teachers with two years of training will be given increases of $100 for seven years until the maximum of $1,700 is reached. Teachers with three years of training will be given increases of $100 for eight years until the maximum of $1,800 is reached.

Full-time male teachers in the high school will be given a minimum of $1,200, to be paid for the probation period of two years. Teachers with two years of training will be given increases of $100 a year for two years, and $150 for five years until the maximum of $2,150 is reached. Teachers with three years of training will be given increases of $100 a year for two years, and $150 for six years, until a maximum of $2,300 is reached. Teachers with four years of training will be given increases of $100 for one year, $150 for four years, and $200 for three years, until a maximum of $2,500 is reached. Teachers with five years of training will be given increases of $100 for one year, $150 for four years, and $200 for four years until the maximum of $2,700 is reached.

Full-time female teachers in the high school will start at a minimum of $1,100 a year for a probation period of two years. Teachers with two years of training will receive increases of $100 for two years, $150 for five years until a maximum of $2,050 is reached. Teachers with three years of training will be given increases of $100 for two years, and $150 for six years until a maximum of $2,200 is reached. Teachers with four years of training will receive increases of $100 for one year, $125 for two years, $150 for three years, and $200 for two years until a maximum of $2,300 is reached. Teachers with five years of training will receive increases of $100 for one year, $125 for two years, $150 for three years, and $200 for three years until a maximum of $2,500 is reached.

Female principals in the elementary schools will begin at a minimum of $2,000 for a probation period of two years, and will be given increases of $100 a year for four years, until the maximum of $2,400 is reached. Male principals in the high school will receive increases of $150 a year until the maximum of $4,500 is reached. New principals will start at $3,500, to be paid during a probation period of two years, with increases of $250 a year for four years, until a maximum of $4,500 is reached.

TEACHERS' SALARIES

♦ Wabash, Ind. The school board has voted to give all city teachers a 10-per-cent increase in pay. The increases will be paid regardless of action taken by the state board of tax commissioners in recommending a three-cent reduction in the city tax levy for next year.

♦ Pittsburgh, Pa. The board of education has voted to give increases of 10 per cent to 3,160 employees, at a cost of more than $1,000,000. The increases are required by law and will be met by added revenues from two sources. The first is better tax collection next year, and the second is the allotment of $600,000 which the board will derive from the state income tax.

♦ Pawtucket, R. I. The school board has included in its 1936 budget, provisions for restoration of the automatic salary increases of teachers. The automatic increase plan, under which a teacher was given a $100 annual increase for six years, and a $50 annual increase for the next four years, was abolished a few years ago as an economy measure.

♦ Taunton, Mass. The school board has approved a report of the committee on salaries, providing for the restoration of teachers' salary increases, beginning with January 1, 1936. The restoration of the salary increases will result in an increase of $8,000 in the annual budget for the next year.

♦ Portland, Oreg. The board of education has taken action to return salaries of members of the teaching staff to the previous level. It was voted to raise the salaries of twelve grade principals to the level previous to January 1, 1935. Substitute teachers, with two years' experience, were given raises in salary to the same level as regular teachers.

♦ Rutland, Vt. The board of education has voted to restore 5 per cent of the pay cut of teachers and other employees, beginning with January 1, 1936.

♦ Trinidad, Colo. The school board has included in its 1936 budget, provision for increases in teachers' salaries. All teachers who have not reached the maximum salary in the schedule were given increases of $50, and all contracts guarantee 90 per cent of the salary. These two changes are intended to return the salaries to 95 per cent of the 1930 level, and plans are being made to reinstate the full salaries for the year 1937.

♦ Mr. Rufus D. Smith, provost of New York University, has recently completed a study of population trends and their effect on education, which indicates a threat to teachers' salaries in overextensive construction of new high-school buildings in New York City. Mr. Smith points out that high-school enrollments, which have been increasing since the beginning of secondary education in this country, will pass their peak in 1937, and will begin to decline. The principal cause is the falling birthrate. Mr. Smith warns against overbuilding of high schools, emphasizing that such unnecessary burden will have a damaging effect upon the possibilities for raising the level of teachers' salaries.

♦ Fairfield, Conn. The board of education has adopted a new salary schedule for janitorial workers, which is based upon such definite factors as training, success, and years of service. The schedule was prepared by a committee, appointed by the board of education, and has been made the basis of this year's allotment in the budget.

Under the schedule, janitors having in charge buildings with a floor area of from 13,000 to 15,000 square feet will receive a basic salary of $1,100, with periodic increases of $100 for each five years of service. Janitors having from 16,000 to 18,000 area will receive $1,200. Janitors having from 19,000 to 21,000 area will receive $1,300. Janitors having areas of 22,000 and over will receive $1,400.

♦ Portland Oreg. The new salary increase recently voted by the school board to substitute teachers and certain principals will not benefit the rank and file of grade-school teachers, in the opinion of many instructors in the schools. It is pointed out that the board's action in effect, amounts to a salary slash for regular teachers forced to employ substitutes. The regular teachers receive no salary increase, but are forced to pay increased wages to substitutes employed to take their place during absences.

♦ Two Rivers, Wis. The new 1936 budget of the school board calls for an increase in the item of instruction expenses from $79,259 to $85,435. A total of $4,569 was listed as salaries for additional teachers in the high school, including music and art teachers.

♦ Southbridge, Mass. The school board has voted to make complete restoration of salaries of teachers and other school employees, eliminating contributions made by them to the town.

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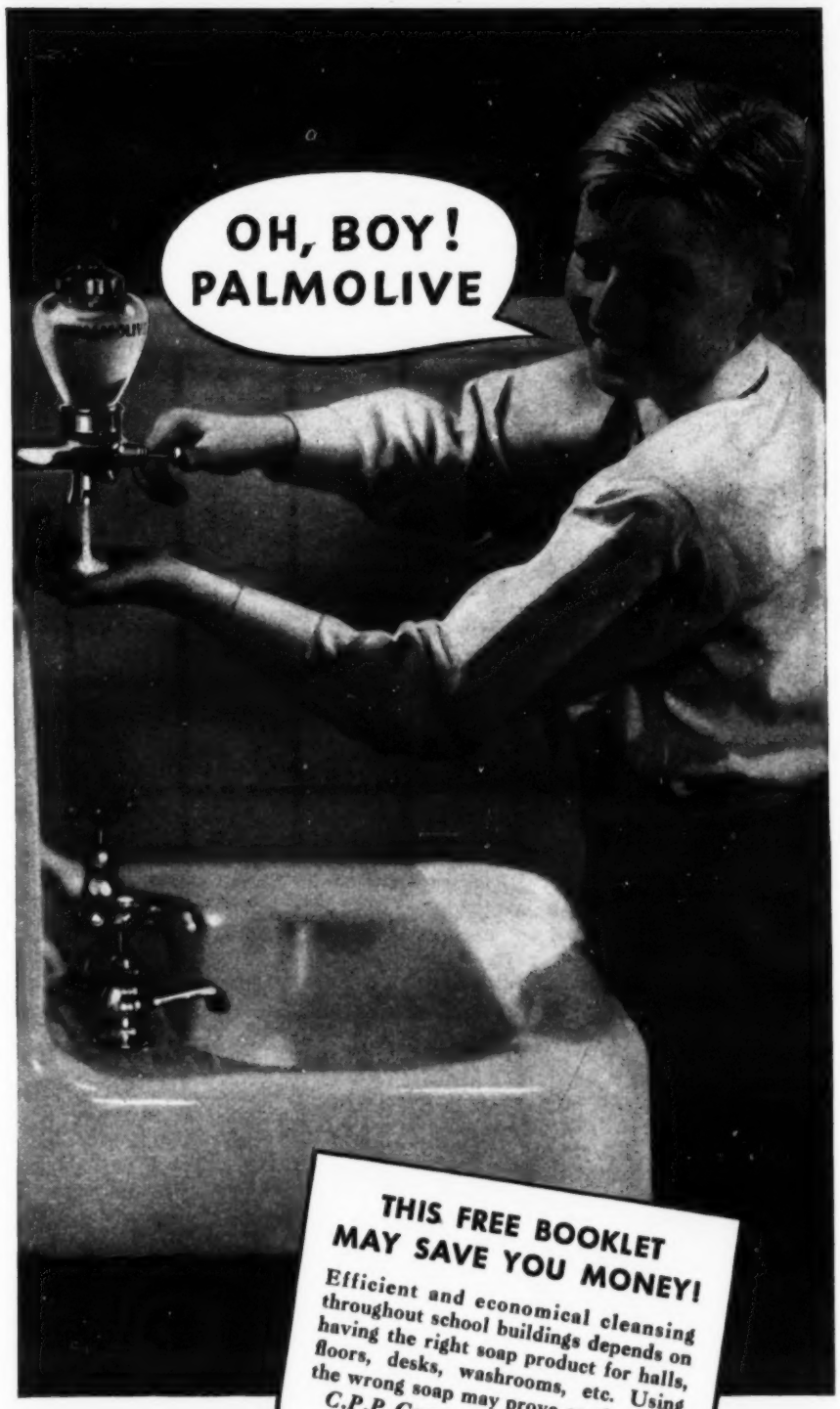

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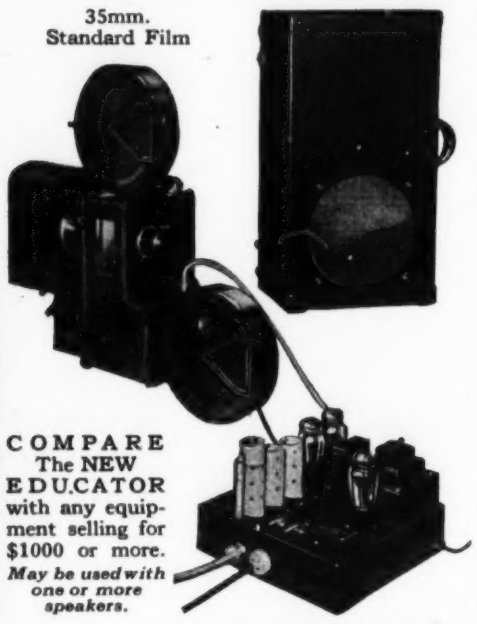

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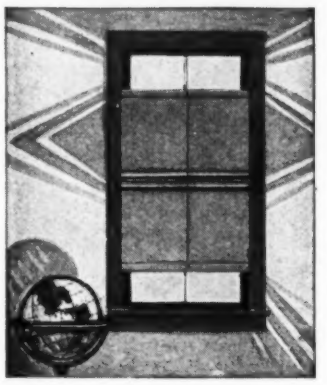

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A SOUTHERN RURAL-SCHOOL-BUILDING ACHIEVEMENT

(Concluded from Page 20)

for gatherings of citizens and of special groups who utilize the auditorium as a meeting hall.

The building is suitably designed in the Colonial style and is constructed of dark-red brick, local limestone trim, and asbestos shingles. The bearing walls throughout are brick. The floor and roof joists and partitions between classrooms are wood. The auditorium roof is carried on steel girders. The boiler and coal rooms have concrete walls and ceilings for fire protection purposes. The walls and ceilings throughout are plastered. The auditorium ceiling is covered with acoustic tile.

Each of the ten classrooms measures 21 by 30 feet and is fitted with cement-asbestos blackboards, wood-fiber bulletin boards, buzzer class-period signals, and wood-partition wardrobes. The classroom windows are of the projected type for ventilation. Enclosed electric-lighting fixtures are provided to supply 10 to 12 foot-candles on all desk tops.

The auditorium, which measures 42 by 70 feet has space for chairs for 590 persons. The stage has a simple scenery and a curtain for school dramatics.

The heating system is of the one-pipe, low-pressure steam type with a steel boiler. The toilet rooms have cement floors, metal toilet partitions, chinaware (baby and standard size) toilets, wash bowls, and urinals.

The building is planned for an ordinary pupil capacity of 400. It was started in June, 1934, and occupied in January, 1935. The total cost, including equipment, architects' fees, etc., was $43,790, or approximately 12 cents per cubic foot. Messrs. Chas. C. Benton & Son, Architects, Wilson, North Carolina, made the plans and supervised the construction.

TWO INTERESTING HIGH-SCHOOL ENLARGEMENTS

(Concluded from Page 28)

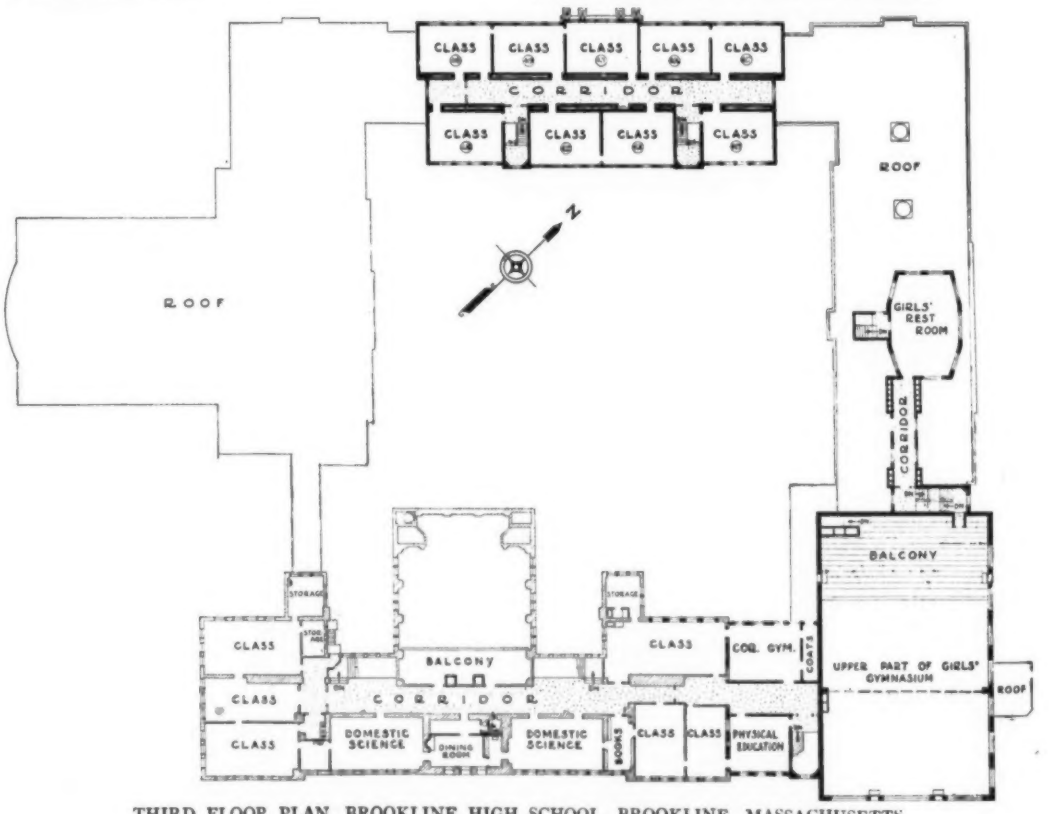
Main Building:
- 3 Domestic-arts rooms
- 5 Physics and chemistry laboratories with 3 accessory rooms
- Auditorium, stage and anterooms
- 2 Biology rooms
- Library and librarian's room
- Principal's suite, 3 rooms
- 2 Teacher's rooms and toilets
- General toilets
- 2 Clothing rooms
- 5 Commercial rooms of varying sizes
- Superintendent's suite, 4 rooms
- 3 General classrooms
- Cafeteria, kitchen, locker and service rooms

West Wing:
- 2 Art rooms
- 4 Commercial rooms
- 10 General classrooms
- Toilets

East Wing:
- 9 General classrooms

Shops: 3-story unit, 37 by 100 feet
- Boiler plant, 42 by 60 feet
- Gymnasium wing, 100 by 110 feet
- Portables, 20 by 130 feet

This plant, *tout compris,* will accommodate in a single session some 1,200 pupils. Under favorable conditions of enrollment, with all rooms occupied to capacity, a maximum school population of 1,750 can be reached.



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Kilham, Hopkins & Greeley, Architects, Boston, Massachusetts.

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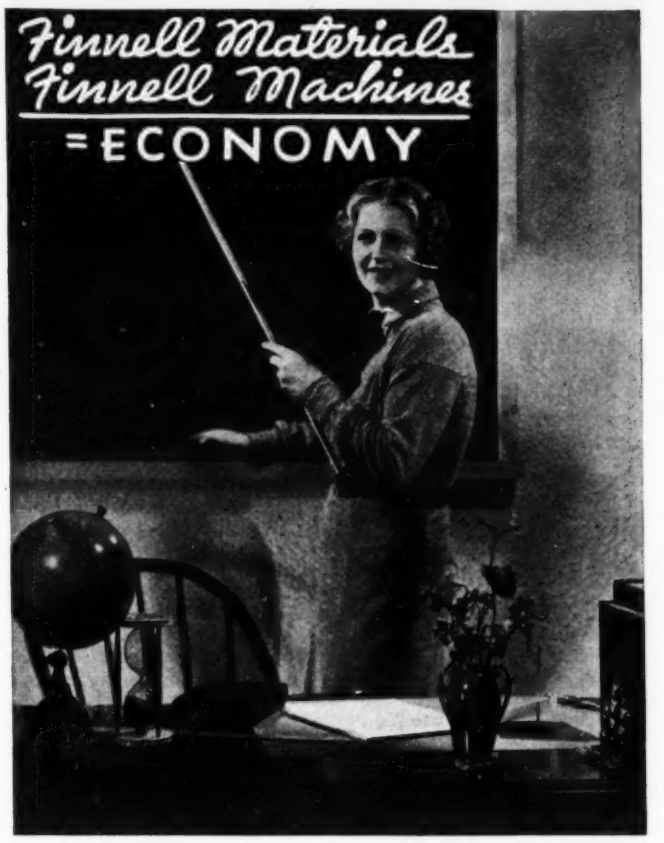

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GLOSS SEAL No. 7 provides the toughness and elasticity of GLOSS SEAL No. 1 in a more penetrating form. Leaves little or no surface film.

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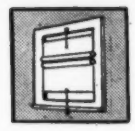

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UP AND DOWN WITH PWA AT LEXINGTON, KENTUCKY

(Continued from Page 46)

school plant such that no undue apologies are longer necessary for any building in the Lexington school system.

Could the same seven projects be constructed for less than 70 per cent of the total cost under PWA? Probably not. Building costs have gone up so rapidly that 1932 standards are worthless as a means of comparison. Perhaps Lexington's program could have been completed for 20 per cent reduction in cost if carried out independently of PWA, possibly for 25 per cent less, but to the argument of excessive costs under PWA there is one unanswerable rebuttal in the present case, at least: *There would be no new buildings today without the original stimulus of PWA*. Incidentally there can be no doubt that the 30-per-cent grant on equipment is a genuine "grant."

Since this program has been completed, the school board has authorized another building survey to formulate recommendations for other buildings, either already needed or which will be needed in the future. The huge sums of money spent through PWA programs would be entirely worth while if they taught America to plan ahead, to formulate construction programs no matter how dark the outlook — then, and then only, will school boards be in a position to move ahead rapidly when the opportunity presents itself.

In the opinion of the writer, the questions listed below should guide the board of education and the administration in determining whether or not to apply for funds from PWA.

1. Does the school board need new buildings which must be constructed in the next few years anyway?

2. Does the school board have a carefully prepared school-building program formulated upon the basis of scientific professional study?

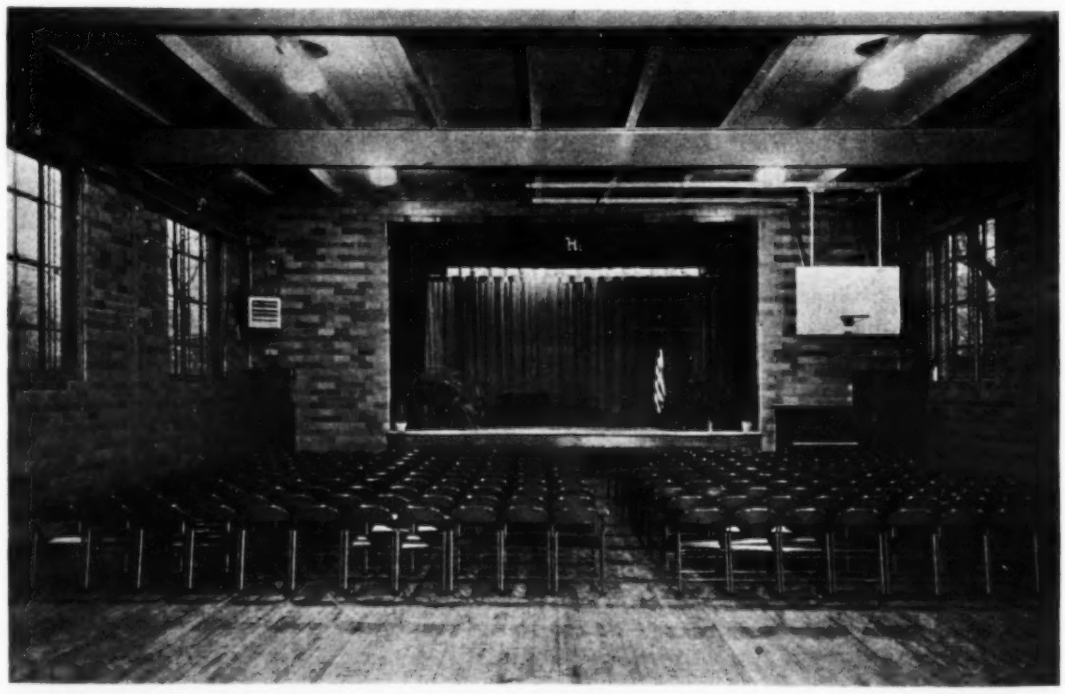
3. Can the school board reasonably expect to finance the necessary capital outlay and — equally important — operate both new and old buildings without impairing the efficiency of the instructional program?

Unless the answer is yes to each question, the board of education probably should not erect new buildings, either with or without the assistance of PWA. If these questions are answered satisfactorily there is no doubt in the writer's mind that PWA provides a definite help, not only some real financial aid but equally important, inspectional services and standards far superior to those ordinarily obtainable by the average local board. That the Lexington board of education and administration are satisfied with PWA is best proved by the application now on file for $300,000 for a new junior-high-school building to be constructed under the new provision of a 45-per-cent grant.

A chronology of the more important steps in the Lexington school PWA program is added below.

June 19, 1933. PWA discussed at a board meeting.

July 11, 1933. Architects selected to draw plans for three projects with the understanding that the



AUDITORIUM-GYMNASIUM, HARRISON ELEMENTARY SCHOOL, LEXINGTON, KENTUCKY
Obadiah Bass, Architect, Lexington, Kentucky.

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board would be under no obligation to pay for plans unless PWA funds were secured.

August 31, 1933. Resolution adopted calling for vote upon the issuance of $350,000 in bonds at the regular election on November 7.

September 15, 1933. Application on three projects filed as a test case before state PWA engineer.

October 15, 1933. Informal notification from PWA that "beyond a reasonable doubt" PWA will make requested grant if bond issue passes.

November 7, 1933. School-bond issue passes 5 to 1, after a vigorous campaign of three weeks.[1]

November 16, 1933. Architects selected for four additional projects making a total of seven projects included in the PWA program.

December 6, 1933. All houses and lots secured through ninety-day options at agreed prices.

January 15, 1934. Loan and grant contracts received for a total of $445,000.

[1]See "A Centennial School Bond Issue" by writer in *School Executives Magazine*, February, 1934.

March 15, 1934. Bid opened for first three projects. Bids exceeded allotment for this docket, therefore rejected.

May 8, 1934. New bids received for first three projects. Low bids accepted on all three.

May 10, 1934. Four-per-cent bonds sold to local bank for 102 and certain other considerations. Application filed for PWA grant instead of loan and grant.

May 14, 1934. Bids for fourth project opened.

May 28, 1934. Contract for fourth project awarded.

June 11, 1934. Bids received for fifth project and contract awarded. Grant increased from $95,000 to $128,500, making total of $478,500 available.

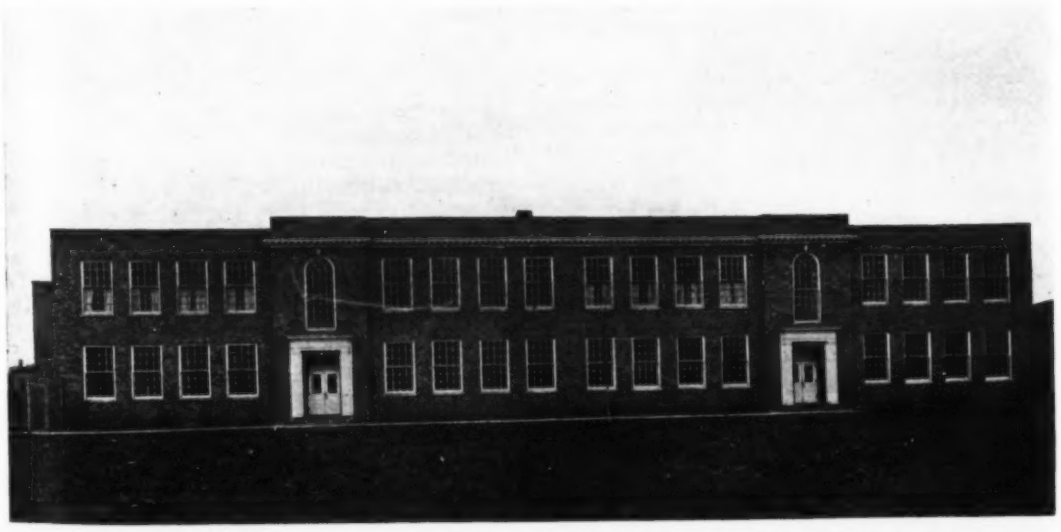
August 8, 1934. Bids received on sixth and seventh project. Contract awarded on sixth project.

November 19, 1934. Bids received the second time for seventh and last project. First three projects completed and occupied.

November 28, 1934. Contract let for last project.

September 2, 1935. Last four projects completed and occupied.

September 30, 1935. Grant further increased from $128,500 to $142,000, the increase based upon expenditures by the board for additional construction and equipment.



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Churchill & Gillig, Architects, Lexington, Kentucky. Wm. B. Brock, Associate, Lexington, Kentucky.

COMING CONVENTIONS

December 30–January 4. American Association for the Advancement of Science and Associated Secretaries, at St. Louis, Mo. Dr. H. B. Ward, Washington, D. C., secretary.

January 2–4. Florida Education Association, at Orlando. Mr. James S. Rickards, Tallahassee, secretary.

January 11. High-School Principals' Association of Massachusetts, at Boston. Mr. W. D. Sprague, Melrose, secretary.

January 15–16. Association of Nebraska School Boards and Executives. Mr. E. J. Overing, Red Cloud, secretary.

January 16–17. Association of American Colleges, at New York City. Dr. R. L. Kelly, New York City, secretary.

January 23–25. Wisconsin Teachers of Crippled Children in Orthopedic Schools and Hospitals, at Milwaukee, Wis. Miss Winifred Farley, Kenosha, Wis., secretary.

February 3–5. Minnesota State School Boards' Association, at Minneapolis. Mr. John Palmer, Fergus Falls, secretary.

February 4. Association of School-Board Secretaries of Pennsylvania, at Harrisburg. Miss Mary E. Robbins, Sunbury, secretary.

February 6–8. Oklahoma Vocational Education Association, at Oklahoma City. Mr. H. F. Rusch, Oklahoma City, secretary.

February 7–8. Indiana Town and City Superintendents' Association, at Indianapolis. Mr. Z. M. Smith, Greenfield, secretary.

February 14–15. Southern Wisconsin Teachers' Association, at Madison. Mr. R. L. Liebenberg, Madison, secretary.

February 19–20. National Vocational Guidance Association, at St. Louis, Mo. Mr. Fred C. Smith, Cambridge, Mass., secretary.

February 20–22. International Council for Exceptional Children, at Chicago, Ill. Mr. M. E. Hebbard, New York City, secretary.

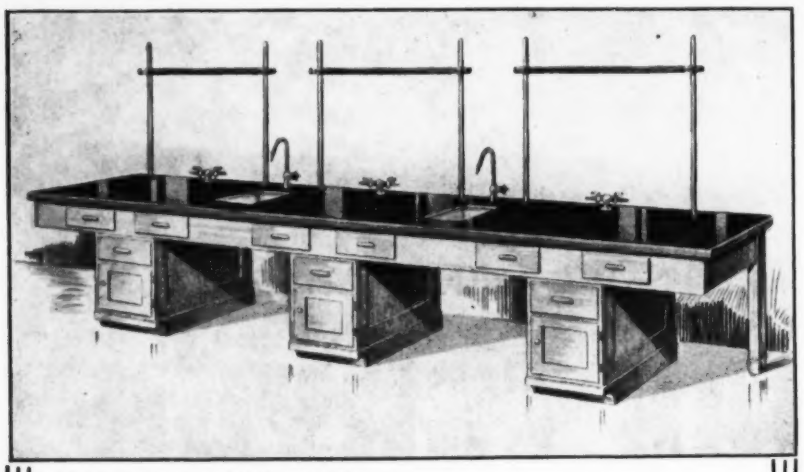
February 22–27. American Educational Research Association, at St. Louis, Mo. Mr. W. G. Carr, Washington, D. C., secretary.

February 22. Department of Secondary-School Principals of the National Education Association, at St. Louis, Mo. Mr. H. V. Church, Chicago, Ill., secretary.

February 22–27. Department of Superintendence of the National Education Association, at St. Louis, Mo. Mr. S. D. Shankland, Washington, D. C., Executive Secretary.

February 27–29. Progressive Education Association, at Chicago, Ill. Mr. F. L. Redifer, Washington, D. C., secretary.

February 28–29. American Association of Junior Colleges, at Nashville, Tenn. Mr. D. S. Campbell, Nashville, Tenn., secretary.



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The *Pierre S. du Pont* High School, Wilmington, Delaware

(Continued from Page 37)

taining bookshelves and washbowl. The four biology rooms are on the first and second floors with southeastern window orientation, wide window shelves serving as worktables. These rooms have 35 student chairs and 14 student tables each, with electrical, plumbing, and stereopticon outlets. The chemistry and physics laboratories are equipped with Lincoln desks to accommodate 16 pupils each. The chemistry room has 7 balance cabinets, 4 steel and glass fume hoods, with a special exhaust fan and ducts to the roof. The physics rooms have a complete electrical testing room with a motor-generator set for alternating and direct current. A darkroom is provided. A science classroom near by is equipped for demonstration purposes.

The clothing laboratory is situated near the fine-arts unit. It has a storage room and a fitting room with triplicate mirror. Special mercury-vapor semi-direct lights are provided. Wall shelving and a rolling ladder add to the convenience of storage. The equipment consists of 200 pupils' drawers, 8 tables, 6 sewing machines, 2 ironing boards, worktable, and cutting table.

The foods laboratory is a model of gleaming white. It is divided into seven 4-girl unit-kitchens divided by 4-foot white-tile partitions. The floors are of linoleum. Laundry tubs, wash machine, and refrigerator are provided. At one end of the room is a model apartment connected by double French doors.

Other Special Classrooms

A public-speaking room contains 42 tablet-arm chairs, platform, speaker's stand, and lectern. The mechanical-drawing room contains sloping-top tables, high stools with back rests, washbasins, storage room, and blueprint room. The commercial classrooms, grouped together on the third floor, have sound-absorbing classrooms, washbasins, 36 typewriter desks of drop-leaf type, and a victrola. The office-practice room contains 36 special bookkeeping desks.

The art classrooms are studio-like with light-colored walls, venetian blinds, skylights, and mercury-vapor artificial lights. The rooms contain the usual art equipment, with ample basins and sinks, floor loom, and pottery department. A metal-lined wet-clay storage cabinet is provided. Outside the large double doors a corridor art gallery has been produced by appropriate treatment of the corridor. The corridor floor is slightly inclined and is widened to 17 feet. In this gallery a permanent collection of fine reproductions and exhibits of work done in the school will be shown for the enjoyment of the entire school.

The music rooms have soundproof walls, doors, and floors. All of the rooms have line blackboards. The music-appreciation room is equipped with chairs, piano, and phonograph. The two practice rooms have a piano and victrola. One has a 27-instrument storage cabinet and the other a large storage closet. The choral room is equipped with a miniature stage, piano, and 80 amphitheatric chairs on raised platforms.

The Industrial-Arts Shops

In addition to the mechanical-drawing room on the first floor, three industrial-arts shops are located on the basement level. Each shop has a classroom and office, toolroom, and toilet and washroom attached. Each has twelve large storage bins and workbenches. The patternmaking and cabinet shop has a paint room, 24 individual benches, and a complete equipment of standard woodworking machines. The electric and sheet-metal shop has four two-deck wiring booths with ladders, motor-generator set with laboratory batteries, demonstration motors, selsyn motor, telephones, photo-electric cell, and infra-red filter, and a control panel with a.c. and d.c. facilities. The sheet-metal equipment consists of standard machines. The machine and auto shop is in an isolated location under the boys' corrective gymnasium. It has mon-ton laminite floors, heat-treating furnace, and the newest type, electrically controlled machines for metalworking and auto mechanics. Double doors leading to the service court permit automobiles to be run into the shop.

The Library

The library suite is located on the second floor above the main entrance, very near to the center of the building. The rooms are floored with a quiet cork carpet. Adjoining the main reading room are 2 conference rooms, a library classroom, a stack room, and a visual-education room. Two large study rooms and two standard classrooms for study are located near by. Across the hall are boys' and girls' toilets, necessitating a minimum of traffic.

Physical-Education Facilities

The main gymnasium is 75 by 90 feet, with yellow-pine floors, high lamella roof, brick walls, and fold-up bleachers for 1,000 spectators. The separate entrance at the rear of the building has a ticket booth, lobby, and toilets for both sexes. On the same level with the main gymnasium is a corrective gymnasium, an equipment room, and an instructor's room. Immediately under the gymnasium are a dressing room, two shower rooms, toilet room, and a uniform-drying room. In addition, separate dressing rooms, showers, and toilets are provided for home athletic and visiting teams. Automatic mixing valves control the temperature of the hot water supplied to the showers. A separate entrance to the main dressing room provides access to the athletic field. The football field has a concrete stadium with wooden seats accommodating 3,000. Additional bleachers for 3,000 and toilets for both sexes are provided at the field. To insure drainage of the playing field 6,500 linear feet of agricultural drain tile has been installed. A ¼-mile track, football practice field, eight tennis courts, boys' and girls' basketball courts, and a girls' hockey field are included on the grounds.

(Continued on Page 80)

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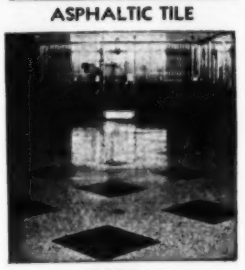
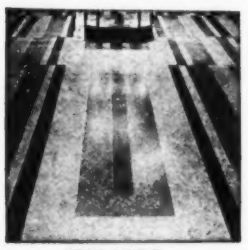

CORK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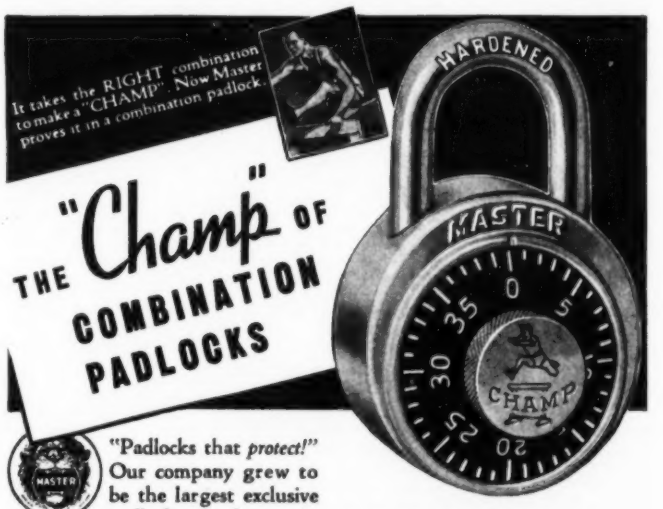

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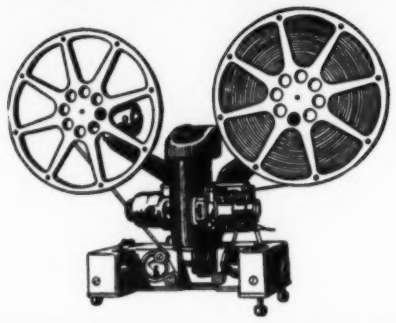

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(Continued from Page 78)

The girls' gymnasium is 40 by 76 feet and is fully equipped, including fold-up bleachers for 240 spectators. The shower room is arranged with individual nests of compartments for showers, drying, and dressing. The partitions are of non-absorbent slate. Each girl has a box locker in the adjoining locker room. Special conveniences include a restroom and a corrective gymnasium. Four electric hair dryers are built into the shower-room walls.

The Cafeteria

The cafeteria is located on the first floor at the rear of, and on the same level with, the auditorium. The main room, which has 65 tables with linoleum tops, capable of seating 512 at one time, has terrazzo floors and acoustic-plaster ceiling. The commodious kitchen is equipped with modern stoves, mixing machines, metal sinks, refrigerators, and the finest culinary aids available. The serving lines move from both ends to the center. A faculty dining room seating 32 and a separate room for dish-washing are provided. The light-colored walls and diffused skylight help make the noon period a delightful recess.

The Auditorium

The auditorium is 72 by 90 feet, with high ceiling, saucer-sloped floor, and balcony. It seats approximately 900 on the main floor and 290 in the balcony. The stage is 37 feet wide and 24 feet deep, with a convertible room at the rear making a possible 36-foot depth. The proscenium is 21 feet above the floor and the gridiron from which scenery and curtain are flown is 44 feet above. Large dressing rooms with mirrors and other conveniences are located on either side of the stage. Storage rooms are behind and below, including a large room connected with the orchestra pit for musical instrument storage. The stage floor has removable traps for easy storage of large pieces in the basement. Thyratron dimmer control from the wing is used. The auditorium is protected from fire with a mechanically operated asbestos curtain. The orchestra pit is entered below the stage and seats 60 musicians below the auditorium floor level. Ornate grilles on either side of the stage conceal an organ loft, radio speakers, and motion-picture amplifiers. Simplex theatrical projectors fully equipped for sound are used. Auditorium programs may be broadcast to each room in the school. The auditorium has hardwood floors, plaster walls, and acoustical-tile ceiling. It is decorated with a simple motif in keeping with the general character of the building. It is ventilated with filtered and tempered air supplied through sound-insulated ducts leading to mushroom floor outlets. A thermostatically controlled air-exhaust system serves to prevent overheating of the room.

Administrative Suite, Engineering Rooms, and Student Rooms

The office and hospital suites are placed adjacent to the main entrance on the first floor. The principal's and vice principal's offices are located on either side of the large general office. The two deans' offices, located side by side, have a private waiting room. A teachers' conference room is adjacent to the deans' offices. The general office is equipped with a counter, office furniture and files, teachers' mail boxes, intercommunicating telephone switchboard, fire-alarm panel, program clock, and stationery storage, mimeograph, locker, and toilet rooms. The principal has a private waiting room connecting with the general office. Attached to the private office, but accessible from the general office, is a radio-control room for the public-address, radio, and program-clock system. Near the administration rooms both a men's faculty room and a women's faculty room are located. Three specially equipped student rooms are provided, one for publications, one for the student council, and a third for the traffic squad.

The building engineering is centered about the custodian's office on the basement floor, which is centrally located between the heating plant, laundry, and receiving room, and is at the driveway entrance to the receiving court. Janitors' service rooms are located on each floor at the corridor intersections.

The medical suite has a school nurse in charge part time. The infirmary equipment consists of six beds, built-in dressing booths, and necessary furniture. Adjacent to the infirmary is a medical room, a waiting room, and a toilet on one side and a health classroom on the other.

Heating and Ventilating System

Mechanical, storage, and service systems are located in the basement. The heating system consists of direct mechanical heating and ventilation supplemented by direct radiation where necessary. The steam is conveyed by a low-pressure vacuum two-pipe feed. Two vacuum pumps, equipped for either vapor turbine or motor drive, return the condensate. The heat is furnished by three locomotive-type soft-coal boilers, fitted with stokers and electric combustion control. The boiler tubes are cleaned by means of compressed-air jets in the tubes. Hot water for water lines may be supplied either from the main boilers through generators into two 500-gallon storage tanks, or through a small hot-water boiler. All steam mains have oxyacetylene-welded joints and are insulated with magnesia featherweight insulation.

The building contains seventeen separate heating and ventilating systems, with special means for removing vitiated air from toilets, locker rooms, shower rooms, janitors' rooms, auditorium, main entrance, motion-picture booth, laboratories, dressing rooms, and cafeteria. Part of the "design for economy" consists in automatic electric-clock control for starting and stopping the various systems of heating and the exhaust fans. With weather-stripping and automatic control systems in use, the heating costs may be kept at a minimum.

The classroom and corridor radiators are recessed in the building construction. Each classroom has a thermostatically controlled heating and ventilating unit which filters the air to 90 per cent dust elimination. Vitiated air is removed from the classrooms by both gravity exhaust and motor-driven fans. The ventilating units do not admit outside air to the rooms until normal room temperature has been reached. Some of the vitiated air is removed by means of a large attic chamber and vents in the ornamental lantern.

The Electric Service System

Two electrical service sources, each on an independent network, serve the building. The transformer vault contains four 150 Kva transformers,

(Concluded on Page 83)

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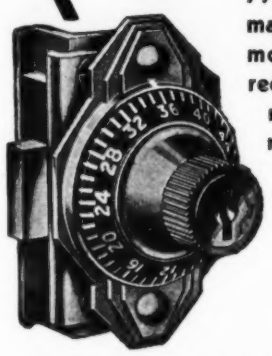

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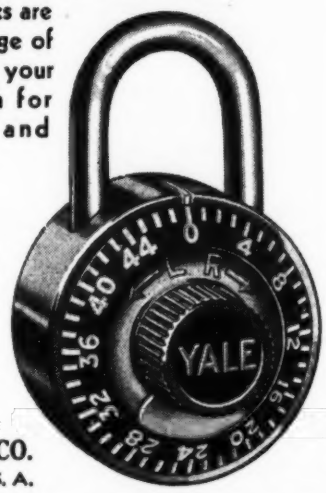

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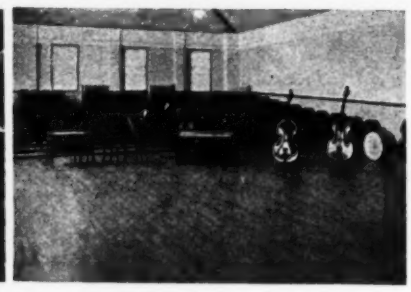

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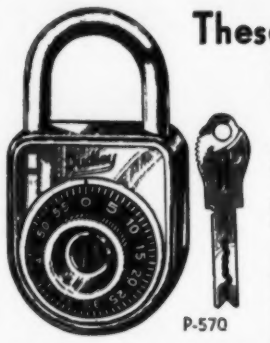

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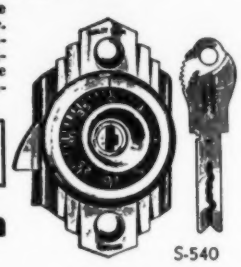

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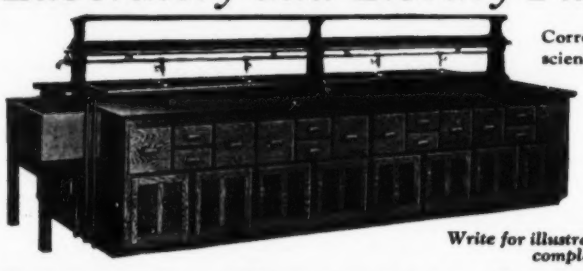

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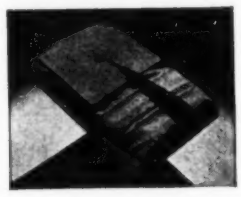

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(Concluded from Page 80)

which are carried to the switchboard for voltage current distribution. Automatic switch gear in the transformer room will transfer the entire building load to either service. Heating units, ventilating fans, and other power units are connected with an automatic contactor panel controlled by the program machine. Building telephones and clocks are located at convenient points throughout the building. A call and amplifier system, connected to the program clock, has radio, phonograph, and microphone input circuit. The regular signals are bells, buzzers, and musical chimes which serve to attract attention. To promote quick understanding of signals, acoustical treatment of the rooms has been provided. All electric motors have been tested for quiet operation, and all fan motors are mounted on rubber-insulated platforms.

As previously mentioned, the electric lighting is semi-indirect and is consequently conducive to real eye comfort. To safeguard the eyes of pupils from unusual strains, mercury-vapor ceiling lamps supplying 16 foot-candles of light at the working surfaces are provided in the mechanical-drawing room, art studio, and clothing laboratory.

Fire-Protection and Water-Supply Systems

The fire mains and water-supply pipes are completely separated. The fire-hose racks and valves are recessed in the corridor walls, and automatic sprinklers are installed for the stage, shops, and certain storage rooms. Fire-alarm break-boxes are installed at key positions. An office panel shows the location of the alarm, and the master speaker may be used to direct the exit from the building. A lightning arrester protects the building. The eight stairways to outside exits are protected by kalamein partitions and fire-and-smokeproof doors. The building may be emptied in two minutes.

The water supply is carried by streamline copper tubing with soldered joints. Washbowls, ample for every need, are provided throughout the building. Six drinking fountains are situated in the corridors on each floor in addition to those placed in the gymnasiums, shops, and other special rooms. The fountains, which are recessed, are self-closing, non-flooding, and sanitary. Special acid-resisting sinks and drains are provided for the science laboratories.

Cleaning System, Laundry, Mechanical Service, and Storage

The dust and dirt is removed from the building through a central vacuum-cleaner system. Portable hose sweepers, attached to wall outlets located not farther than 50 feet from any point make cleaning a quick and efficient process.

The laundering of gymnasium towels is done in the laundry room, which is equipped with a rotary washer, tumbler dryer, and spinner dryer.

The mechanical services include separate entrances for coal, cafeteria supplies, shop supplies, and general supplies. Wastepaper and refuse from each floor may be dumped into loading doors leading to an incinerator in the basement. The passenger elevator may also be used to convey supplies from the receiving room to the various floors.

Storage space is adequate for every need. In addition to the special storage rooms on each floor, a large receiving and storage space is provided in the basement near the head custodian's office. Four hundred tons of fuel may be stored adjacent to the boiler room.

Locker Provisions and Toilet Rooms

A full-height locker is provided for every pupil. The lockers are located chiefly in alcoves situated near the intersections of arterial and secondary corridors. The gymnasiums provide both full-height lockers for street attire, but also box lockers for athletic uniforms.

Two large toilet rooms are provided for each sex near the locker alcoves on each floor. The rooms have terrazzo floors, Keene cement wainscot, and plaster walls. The seats are open type, porcelain topped, wall hung, and syphon flushed. They are separated by metal partitions and swinging doors. Adequate washbasins with hot and cold water, pressure-closing spigots, towel containers, and soap dispensers are provided.

Occupation of the Building

The total cost of the building, including site and instructional equipment was $1,930,000. Exclusive of equipment and site, the cost was $1,643,000—approximately 44 cents per cubic foot or $730 per pupil.

The Board of Public Education in Wilmington does not have any fear that the building will become obsolete before the bonds have been paid, or that the debt service will enormously increase the first cost. The building was financed on the "pay-as-you-go basis," through a legislative appropriation of $1,500,000, from surpluses in the Delaware State School Fund and a PWA grant of $435,000.

The Pierre S. duPont High School in Wilmington was occupied for the first time in September, 1935, and the formal dedication took place November 6. The principal speaker at the dedication was Dr. A. J. Stoddard, superintendent of schools in Providence, R. I., and president of the Department of Superintendence.

The impressive dedication marked the first time in many years that every child in Wilmington had been on a full-time schedule. This building is a culminating achievement and a source of just pride for those far-seeing "Service Citizens" of the state who began to launch the state school-building program in 1918. This group, under the leadership of Mr. Pierre S. duPont, drew the sword to the dragon of public indifference, dedicating themselves to the great task of remedying the ills of the educational system. With the completion of this building, the Delaware School Foundation ends its active career as an integral part of the state school-building program. The astonishing fact about the school-building program in Delaware is that it has been almost completed in a brief span of twelve to fourteen years.

From September 17 to 20, 1935, a public inspection of the building was held. The reaction of the thousands of visitors conducted through the building by student guides was one of great satisfaction and approval. The Wilmington newspapers hailed the completion of the project as a crowning achievement, representative of the highest the people of the city of Wilmington and State of Delaware stand for. The completed school plant represents a successful project in co-operative planning. It stands as a monument of beauty and suitability achieved only when architect and engineer build into, and out from, the requirements of the educator.

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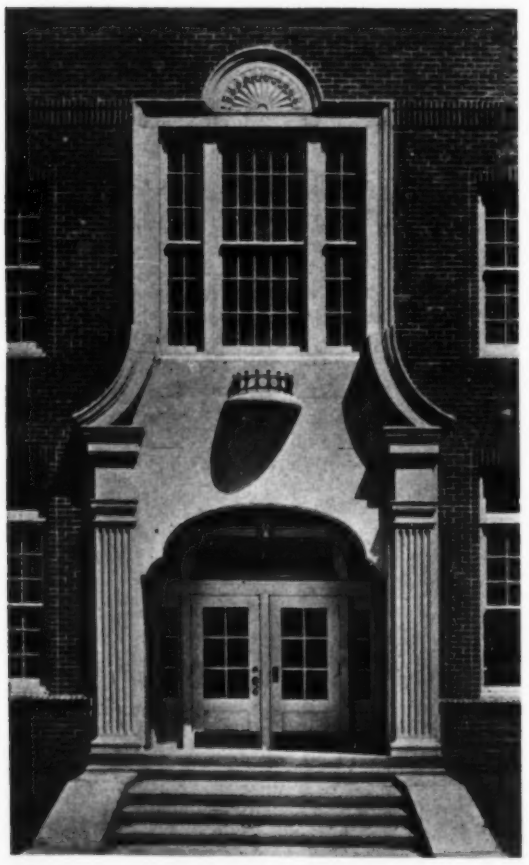
Wilmington, Delaware

THE KENWOOD ELEMENTARY SCHOOL

(Concluded from Page 40)

culations the library, the stage-workroom in the kindergarten, and all auxiliary rooms.

The construction cost of the building was $203.55 per pupil; a remarkably low cost considering the quality of the construction throughout, and the completeness of the building's appointments.



DETAIL OF FRONT ENTRANCE, KENWOOD SCHOOL, KEARNEY, NEBRASKA

This school building was a PWA project, and it was built under the 30 per cent grant and 70 per cent local financing agreement with the Federal Administration of Public Works.

The wages stipulated under the agreement with the Federal Administration and paid on this work were considerably higher than the prevailing wages in this locality, and this fact, *per se*, had the effect of somewhat increasing the construction cost of the building.

Our relations with the Public Works Administration, however, were very agreeable, and decidedly advantageous to the school district. The school district not only received the 30 per cent grant, but in addition to this the Public Works Administration gave, without cost to the district, a very capable and expert inspection and supervision service.

The thought intrudes in the mind of the architect that Federal inspection and supervision over all public projects would be beneficial in many respects; not the least of which is the elimination of local "politics." Surely boards of education generally would heartily welcome the freedom from criticism and insinuations which so often accompanies locally administered public construction, and from which Federal supervision removes all "legs to stand on."

NEW LIBRARY PLAN AT ROCKY FORD, COLORADO

A plan has been inaugurated in the high school at Rocky Ford, Colo., which seeks to train student library staffs. The plan, which is in its third year of operation, takes students who desire to be assistants in the library. Such students must make application at the close of the school year. An average of 100 pupils are taken care of per period in study hall and library.

The library, which serves a student body of 550, is composed of a library room and study hall. Sixteen senior-high-school girls are serving on the library staff this year. They take over such duties as circulation of books, recording of fines, arrangement of books, and helping in the general appearance of the library.

The fact that staff assistants are able to assume responsibility for desk work and to take over much of the routine work makes it possible for the librarian to devote her time to supervision. Two girls are on regular duty each period during the school day, before school, at noon, and after school. Definite schedules are maintained, instructions and schedules are given out at the desk, and each girl devotes six hours a week to the work, five hours in service and one hour in instruction.

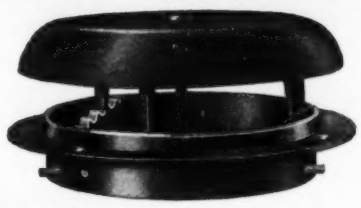
The pupils in grades nine to twelve have at least one period a day in the study hall, and senior students to their work in the library. The junior-high-school students have at least two periods a week in which they use the library.

It is the belief of the administrative staff that the student library staff plan is an excellent device for training students through activity, and that it is the greatest asset a good school can have as a part of its personnel.

The student library staff plan is being carried out with the co-operation and approval of Mr. J. H. Wilson, superintendent of schools, Rocky Ford, Colo.

♦ The public schools of the city of Milwaukee receive 42.1 cents of every tax dollar raised by the city of Milwaukee. According to an announcement by Mr. William H. Wendt, city comptroller, the public schools received in 1935, $5,112,000 for instructional service, $852,000 for school-building repairs, $600,000 for new school construction, $511,200 for trade school purposes, $340,000 for social centers, and $1,142,300 for the vocational (continuation) school. The city's next largest expenditure is 30.1 cents for general city purposes.

TO CONTROL AIR IN SCHOOL AUDITORIUMS



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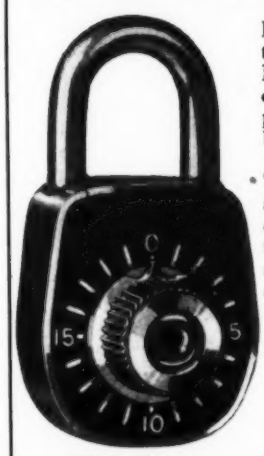

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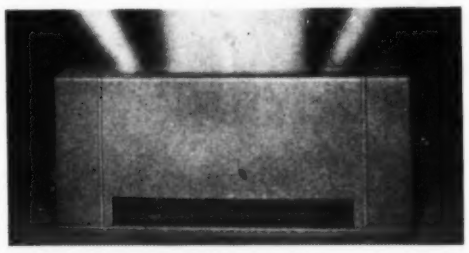

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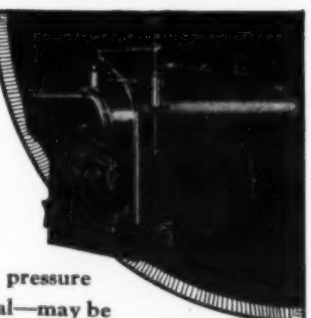

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FLOORS AND FLOOR COVERINGS

(Concluded from Page 29)

laneous science laboratories, chemistry and biology laboratories, sewing rooms, music, social, rest, teachers' workrooms, conference, administration, stage dressing rooms, drawing and art rooms, gymnasiums.

Burned Tile and Terrazzo: Toilet rooms, washrooms, slop-sink closets, locker and shower rooms, corridors, entrance foyers, entrance vestibules, cafeterias, kitchen and service, domestic science, chemistry and biology laboratories, conservatory, storerooms, fan and engine rooms.

Composition (Magnesite): Auditorium, corridors, entrance foyers, cafeterias, kitchen and service rooms, domestic science.

Wood: Classrooms, miscellaneous science laboratories, chemistry and biology laboratories, sewing, music, social, rest, teachers' workrooms, gymnasiums, storerooms, conference, administration, auditorium stage, stage dressing rooms, drawing and arts rooms, general shops.

Cement: Auditorium, storerooms, projection booth, auto shop, boiler room, coal vaults, fan and engine room, and general service rooms.

THE SOCIAL-STUDIES CLASSROOM

(Concluded from Page 32)

jectors are all useful within their limitations. In the Indiana State Teachers College Training School, provision is made for use of such projectors in the classroom, but a projection room opposite the social-studies suite provides special facilities under ideal conditions for visual education. The improved type of stereoscope with specially mounted lens, provides another means of visual instruction. Some type of phonograph, either a separate instrument in the room, or the type usually placed in radio distribution cabinets is useful. A great many periods of history can be illustrated with recordings of music appropriate to the period, and addresses or recitations connected with important events in history. Catalogs of the leading manufacturers of phonographs and recordings list such material.

It is the ambition of all good teachers of the social studies to create an atmosphere suggestive of their work and conducive to interest in it. The equipment and furnishing of the room has much to do with the creation of this atmosphere, and the most luxuriously fitted room would be useless without a skillful teacher. Well-selected pictures, appropriate to the subject matter of the social studies, decorative maps, and other similar objects create this atmosphere. Some persons may regard this atmosphere as a fad or frill of the new education, but it is, in reality, the means by which interest can be built up in what some students have regarded as dull subjects, dull because the only means of instruction was the textbook. Once the pupil becomes interested, a capable teacher should be able to hold the pupil's attention, and should cause him to develop a lasting appreciation of these studies. When social science through proper equipment is made as thrilling and as full of interest-arousing situations as natural science, the social studies will reach their rightful place in the curriculum. It is hoped that this discussion has contributed some few useful points to an appreciation by school administrators of the material needs of the social studies.

AUTOMATIC LIGHTING AND SCHOLARSHIP

(Concluded from Page 49)

This may be due to better working conditions which produce a higher emotional tone and a gayer and happier mood.

It is the intention to carry on the experiment for a second year in 1935–36 using the same two groups in the same two rooms and two different teachers in the fifth grade, but putting Group B in the standard room and Group A in the experimental room. Of the 64 pupils who started the experiment, 62 will undoubtedly be enrolled to continue the experiment. No child who was in the group at the start was retained in the fourth grade, so that the groups will remain practically intact. We are watching with greater interest the progress of the experiment in the second year.

♦ Los Angeles, Calif. The voters have approved a proposal for a bond issue of $12,392,600, to match a federal grant of $10,139,400, making a total of $22,532,000 for school-building purposes.

♦ Kilgore, Tex. The voters have approved a bond issue in the amount of $110,000, which is to match a federal grant of $90,000 for school-building purposes. The money will be spent for the erection of a junior college building and a high-school gymnasium.

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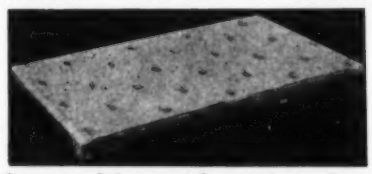

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PERSONAL NEWS

● Mrs. Henry O. Robinson, who was a member of the school board of Boston, Mass., for six years, died on November 30, at her home.

● Mr. Frank Dyar has been elected president of the school board at Salina, Kans.

● Dr. Thomas H. Snowwhite, president of the school board of Braddock, Pa., died at his home on November 22, at the age of 44. Dr. Snowwhite was graduated from the University of Pittsburgh Medical School in 1913. He had been a member of the board since 1918, and was a member of the staff of the Braddock General Hospital.

● Mr. J. Peter Johnson has been elected as president of the school board of Shelton, Conn.

● Mr. J. C. Bergen has been elected president of the school board at Bridgeport, Conn.

● The board of education of Pittsburgh, Pa., has reorganized, with the election of Mr. Marcus Aaron as president, Mr. A. P. Reed as vice-president, and Mr. H. W. Cramblet as secretary.

● Mr. Clifford Basquin has been elected president of the county board of education at Millersburg, Ohio.

● Dr. Edward G. Sluyter has been elected a member of the board of education at Pontiac, Mich., to succeed the late Hugh D. Montgomerie.

● The school board of Pottstown, Pa., has reorganized with the election of Mr. I. Leroy Johnson as president. Mr. F. C. E. Mihlhouse will be retained in the office of secretary for the next two years.

● Mr. Ira Daws has accepted the position of clerk of the board of education at Hawthorne, Calif. He succeeds C. E. Wilbanks, who resigned from the position.

● Mr. Donald E. Gavit has been appointed as business manager for the board of education at Hammond, Ind.

● Mr. Harold M. McConnell has been elected secretary of the board of education at St. Joseph, Mich.

● The school board of Billerica, Mass., recently held memorial exercises in memory of Dr. Maurice A. Buck, a member of the board and a town officer for more than 35 years.

● Mr. E. A. Edwards, of Selby, S. Dak., has been elected superintendent of schools at Gann Valley, to succeed J. D. Hall.

● Mr. G. E. Watson, formerly of Waupaca, Wis., has assumed his duties as superintendent of schools at Marinette.

● Supt. Joseph C. Sweeney, of Pascoag, R. I., was the guest of honor at a banquet in the high-school auditorium, given by the Burrilville teachers' association.

● Mr. Oliver R. Hartzell entered upon his sixteenth year of service in the public schools of San Rafael, Calif., on July 1, 1935. Mr. Edwin A. Wells, principal of the San Rafael High School, works under the administration of Superintendent Hartzell.

● Mr. Wade F. Blackburn has been elected superintendent of schools at Monessen, Pa. He succeeds Samuel Fausold, who has resigned.

● Mr. Clyde A. Erwin is a candidate on the Democratic ticket for reappointment to the position of State Superintendent of Public Instruction of North Carolina. Mr. Erwin, who will complete his first term in the office on June 1, was chairman of the state textbook commission previous to his appointment as state superintendent.

After the Meeting

A Prohibition Lesson

A teacher was trying to drive home the evil effects of alcohol. As an object lesson, she obtained a number of earth worms and a wide-mouthed bottle containing alcohol. After explaining the deadly results of alcohol, she dropped a wriggling worm into the bottle, and called upon Johnny to explain his understanding of the experiment.

Johnny beamed as he said: "Teacher, it means if I drink alcohol, I won't have worms."

And There's Teacher

The teacher was endeavoring to push the sale of the class photograph.

"Now, children," she said, "just imagine how you will enjoy looking at this photograph when you grow up. As you look at it you will say to yourself: 'Here's Mary, she's a nurse; and there's Willie, he's a barber; and—'"

Just then a pert little girl of vivid imagination blurted out: "And there's teacher, she's dead."

Afflictions

The visitor to the school found one little boy standing alone in the corridor.

"And what are you doing out here?" he asked.

"Because of palpitation and insomnia," was the response.

"But surely, you're not suffering from these two?" the visitor gasped.

"Yes, sir, I could not spell them!"

Gob Humor

Instructor (to recruit sitting near another who has gone to sleep during lecture): Wake him up.

Recruit: Wake him up yourself. You put him to sleep.—*U. S. S. West Va., Mountaineer.*

From Experience

The teacher had been trying to make clear the fact that the ether pervades all space. Finally she asked: "What is it that is everywhere, that cannot be shut out by wal's or doors?"

"I know, teacher," said Johnny, who had been out on a farm during the summer, "the smell of a skunk."

Where the Leaves Are!

A teacher was explaining to a little girl how the trees develop their foliage in the springtime.

"Oh, yes," said the little girl, "I know now. They keep their summer clothes in their trunk."

Safety First

Teacher: Johnny, why does Missouri stand at the head of mule raising in the United States?

Johnny: Because the other end is too dangerous.

Economical Insect

Teacher: What insect requires the least nourishment?

Peter: The mouth, for it eats holes.

Ho for the Navy

Teacher: Johnny, what is meant by a floating population?

Johnny: A lot of guys enlisted in the navy.—*U. S. S. California Cub.*

"Hullo, my little man, all over spots on the day you were returning to school, eh?"

"Yes, Doctor. Isn't nature wonderful?"—Punch, London.

Personal News of Superintendents

DEATH OF DR. CHARLES M. JORDAN

Dr. Charles M. Jordan, who was for more than forty years connected with the public schools of Minneapolis, Minn., died on November 30, at the home of his daughter in Birmingham, Ala. He was 84 years old.

Dr. Jordan was born in Bangor, Maine, and was graduated from Taft's College. His first educational work was at the University in Minneapolis. From there he went to Winthrop School, and later became principal of the Adams School in Minneapolis.

Appointed superintendent of schools of Minneapolis in 1892, Dr. Jordan held the position for 22 years, and was largely responsible for the formation and development of the city school system. In February, 1914, he relinquished the superintendency and became superintendent-emeritus, a position which he held until his retirement in September, 1933.

Dr. Jordan moved to Birmingham a year ago, to make his home with his daughter.

PERSONAL NEWS

● Mr. Clyde Parker resigned from the superintendency of the public-school system of Huntingburg, Ind., on January 1, in order to accept an appointment as Indiana agent for Longmans, Green & Company, educational publishers of New York City. In his new work, Mr. Parker will deal almost entirely with superintendents of the State of Indiana and also with officials of the state education department. Mr. Parker went to Huntingburg in 1931 as principal of the high school, after filling a principalship at Dugger. He served as high-school principal for two years, and was then promoted to the superintendency. During the past two years he had been active in educational work in the state. He was a member of the state committee engaged in revising the state course of study and had served as vice-president of the state teachers' association. Mr. Parker holds an A.B. degree from Franklin College and an A.M. degree from the Indiana Teachers' College.

● Mr. John M. Tobin, master of the Haggerty School, at Cambridge, Mass., was recently declared elected to the position of assistant superintendent of schools, following a meeting of the board of education. The appointment was made after many arguments and over the protests of Mayor Russell, who announced that he would seek a ruling from the city solicitor on the election, and that he would refuse to sign school payrolls if the name of Mr. Tobin appeared on them as assistant superintendent.

● Mr. G. G. Ricker, superintendent of schools at Vandalia, Ill., has been elected president of the Schoolmasters' Club of Illinois.

● Mr. W. J. Andrews, superintendent of schools of Stevens County, Ga., has been elected president of the Georgia Association of Superintendents.

● Mr. Alton R. Anderson, formerly a high-school substitute teacher in Worcester, Mass., has been appointed executive secretary to Supt. Walter S. Young.

● Mr. William M. Denison has resigned as deputy superintendent of public instruction of Pennsylvania, after 24 years of service as a staff member of the department of public instruction. Mr. Denison became a deputy in 1923, and was appointed first deputy superintendent in 1933, and as director of the bureau of professional licensing had rendered thousands of interpretations.

● Supt. L. M. Lott, of Bridgeton, N. J., has been re-elected for another year.

● Mr. F. H. Passenger, of Middleton, Mich., has taken up his duties as superintendent of schools at Ithaca, Mich.

● Mr. John R. Emens, formerly assistant high-school principal at Jackson, Mich., has been appointed as director of teacher training and certification for the state department of public instruction at Lansing.

● Three new members have been added to the supervisory staff of the public schools of Omaha, Nebr. Mr. A. J. Fov Cross has been appointed director of instruction. Miss Carrie Niedermeyer and Miss Elizabeth Rainey have been appointed supervisors for the kindergarten and grades one, two, and three, respectively.

● Mr. Morgan L. Morris, of Cedar Rapids, Iowa, has been elected superintendent of schools at Belle Plaine.

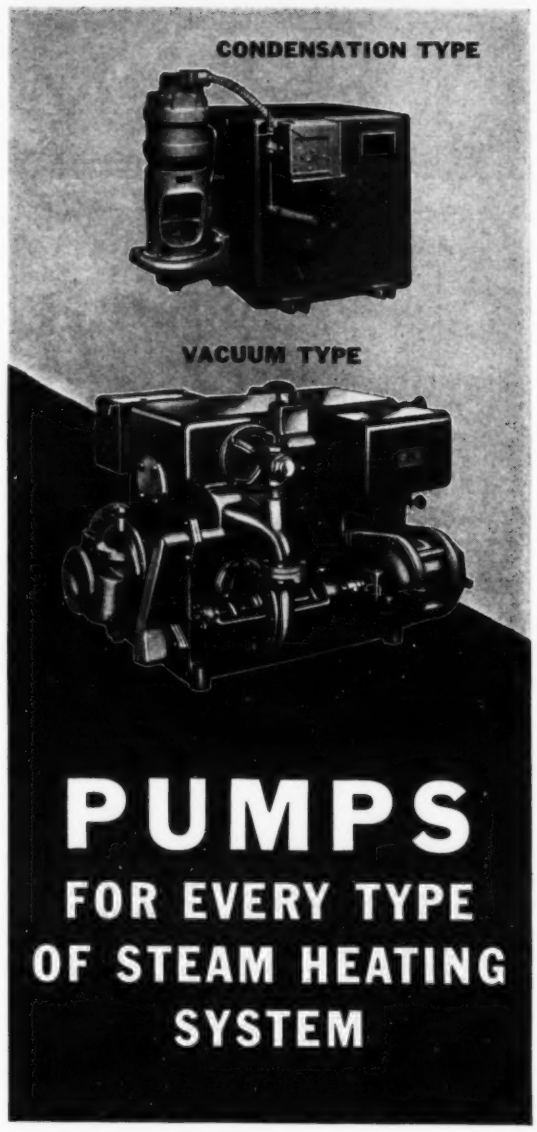
● Schoolmen in the State of Illinois are promoting the candidacy of Dr. William J. Bogan, of Chicago, for the office of president of the Department of Superintendence during the year 1936. The nomination of a president will take place during the national convention in St. Louis, in February.

● Mr. Vierling Kersey, State Superintendent of Public Instruction of California, was recently re-elected president of the National Council of State Superintendents and Commissioners of Education, at the annual meeting of the society in Washington. Other officers elected were Mr. Sidney B. Hall, State Superintendent of Virginia, vice-president, and Francis L. Bailey, State Commissioner of Vermont, secretary.

The council adopted a resolution, affirming its belief in the policy that all educational problems started by the Federal Government be cleared through the U. S. Office of Education and the departments of education in the several states. Formal action was also taken, asking the government to make provision for the education of children on federal projects whenever there are sufficient numbers of children to justify a school. It was urged that all educational activities sponsored by the government be brought together and co-ordinated into one department by the government, the name of which should carry the term "education" in the title. The services of the society were pledged to the President in the formulation and extension of policies pertaining to education in the several states.

● Supt. Frank B. Younger, of Menasha, Wis., has been re-elected for a three-year term.

● Dr. Paul L. Cressman, of Springtown, Pa., has been appointed as director of the Bureau of Instruction in the State Department of Public Instruction. Dr. Cressman, who succeeds William H. Bristow, has had ten years' experience as a member of the department's staff. He was formerly assistant director of the Bureau of Vocational Education and became supervisor of industrial and continuation school education in 1933.



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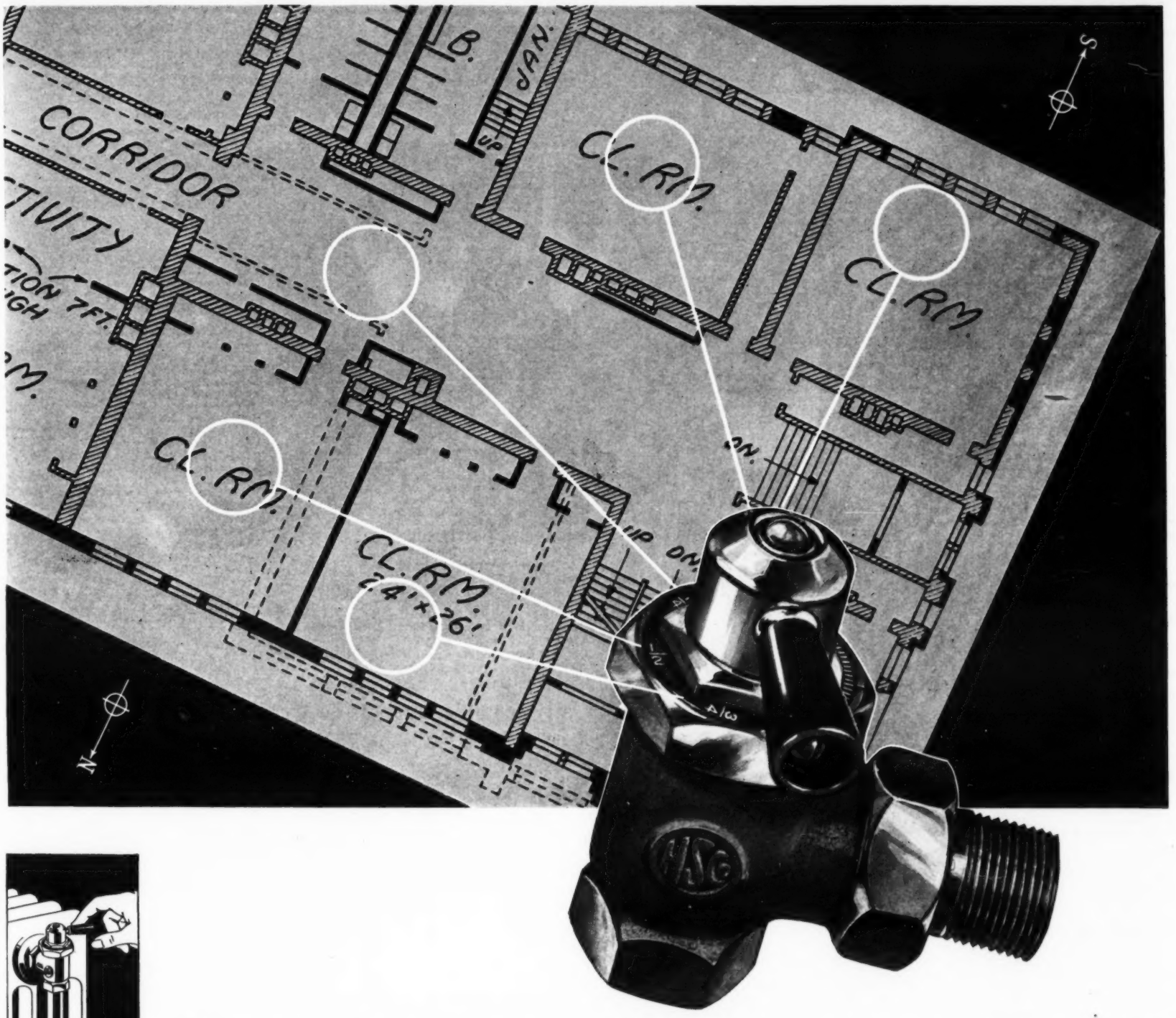

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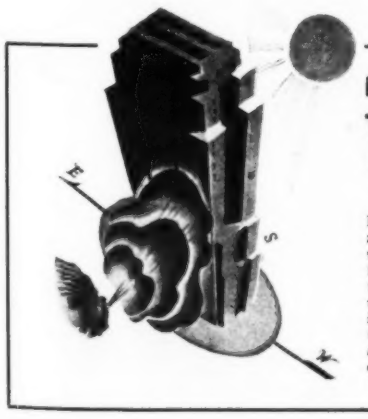

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Weber Costello Co.

STAGE CURTAINS, EQUIPMENT AND SCENERY
Beck Studios
Tiffin Scenic Studios
Twin City Scenic Co.
Universal Scenic Studio

STAIR TREADS
American Abrasive Metals Co.
Norton Company

STEAM SUPPLIES
Crane Company
Hoffman Specialty Co., Inc.

STEEL CABINETS
Lyon Metal Products, Inc.
Medart Mfg. Co., Fred

STEEL CHAIRS
Kewaunee Mfg. Co.
Lyon Metal Products, Inc.
Royal Metal Mfg. Company

STEEL SHELVING
Lyon Metal Products, Inc.
Medart Mfg. Co., Fred

STOKERS
Butler Mfg. Co.

STOOLS—STEEL
Kewaunee Mfg. Co.
Royal Metal Mfg. Company

TABLES
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Kimball Company, W. W.
Peterson & Co., Leonard
Sheldon & Company, E. H.

TALKING MACHINES
RCA Manufacturing Co., Inc.

TELEPHONE SYSTEMS
Graybar Electric Co., Inc.
Holtzer-Cabot Electric Co.
International Business Machines Corp.
Standard Electric Time Co., The
Western Electric Company

TEMPERATURE REGULATION
Johnson Service Company
Minneapolis-Honeywell Regulator Co.
Powers Regulator Company

TOWELS—PAPER
A. P. W. Paper Company

VACUUM CLEANING SYSTEMS
Spencer Turbine Company
Sturtevant Co., B. F.

VALVES—FITTINGS
Crane Company
Hoffman Specialty Co., Inc.
Sloan Valve Co.

VARNISHES
Hillyard Chemical Co.
Huntington Laboratories

VENTILATORS
Buckeye Blower Company
Knowles Mushroom Ventilator Co.
Nelson Co., The Herman
Nesbitt, Inc., John J.
Sturtevant Co., B. F.
Trane Co.

VISUAL INSTRUCTION EQUIPMENT
Bausch & Lomb Optical Co.

VOCATIONAL FURNITURE
Hamilton-Invincible, Inc.
Kewaunee Mfg. Company
Kimball Company, W. W.
Sheldon & Company, E. H.

WARDROBES
Evans, W. L.
Medart Mfg. Co., Fred
Newcastle Products, Inc.
Prosemaco-Schoolkraft Company

WASTE PAPER BASKETS
National Vulcanized Fibre Co.

WASTE RECEPTACLES
Solar-Sturges Mfg. Co.

WATER COLORS
American Crayon Co., The
Binney & Smith Company

WINDOW FIXTURES
White Pine Sash Co.

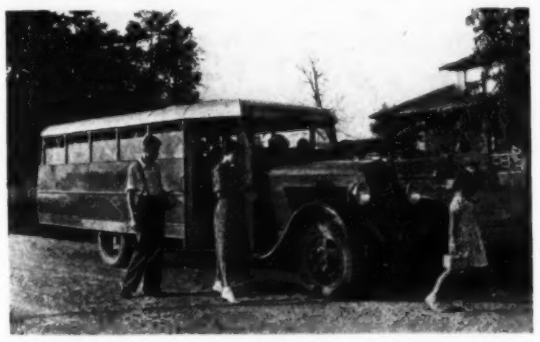
WINDOW SHADES
Beckley-Cardy Company
Draper Shade Co., Luther O.

Buyers' News

A Flooring Miracle. Thirty-five-year-old maple floors in the school buildings of Long Beach, Calif., have been salvaged and returned to use in new and rebuilt school buildings at a minimum of expense. The work, which was done by E. L. Bruce Company, of Memphis, Tenn., reflects not only the ideal economy of the Bruce block floors but also the intrinsic value of maple flooring for school purposes.

Since 1933, the Long Beach School District, because of an earthquake, has been compelled to rebuild 35 school buildings in order to make them quakeproof. The northern hard-maple flooring which had been in use in the old buildings from 5 to 35 years and had been subjected to constant wear and tear, was removed by the usual violent methods employed in dismantling buildings. The old stripped flooring, after being stored in the open for more than six months, was finally shipped to the Memphis plant of the Bruce Company and there transformed into new blocks. Within a short time this maple flooring was salvaged and remanufactured into approximately 400,000 square feet of flooring and installed in the new fireproof and quakeproof school buildings of the Long Beach district. The blocks are laid in mastic and competent authorities declare that the floors will outlive the buildings.

Dodge School Busses Improved. The accompanying illustration shows one of five new Dodge mounted busses, operated by the school authorities of Dayton,



THE NEW DODGE BUS IN USE IN AN INDIANA SCHOOL DISTRICT

Ind. This bus includes enlarged hydraulic brakes, and extra-sturdy rear-axle construction. The body is fitted with safety glass, and the seating arrangement has been studied to afford a maximum seating capacity.

New Royal Steel Folding Chair. The Royal Metal Mfg. Company, Chicago, Ill., manufacturers of steel folding chairs, have announced a new steel, portable assembly chair and a new steel folding chair. These new chairs have been designed on a new principle in school seating and incorporate features previously believed beyond attainment.

Information concerning these new chairs may be obtained upon request, at the firm's offices, 1136 South Michigan Ave., Chicago, Ill.

Issue New Historical Motion-Picture Film. The Bell & Howell Company, 1801 Larchmont Ave., Chicago, Ill., has issued a new historical film, entitled "Three Centuries of Massachusetts."

The new film was prepared under the direction of Prof. Albert Bushnell Hart, of Harvard University, an authority on history, and comprises eight reels depicting events, personalities, and incidents in connection with the history of Massachusetts. It is especially adapted to elementary- and high-school use.

New Chain-Link Fabricated Fence. The Cyclone Fence Company, Waukegan, Ill., has issued a six-page technical circular, describing its 12-m fabricated chain-link fence for inclosing school buildings.

The Cyclone fabricated fence has been submitted to the Preece corrosion test of the U. S. Bureau of Standards and is guaranteed to withstand a minimum of twelve 1-minute immersions. The Cyclone 12-m is proof against rusting because the special zinc coating gives complete and uniform coverage of the wire beneath. It is the finest and most economical fence to buy, because its tensile strength insures resistance against all stretching or breaking, and it is guaranteed to stay trim for years without sagging or bulging.

Complete information and prices may be obtained by any school official upon request.

New Wayne Folding Stage. The Wayne Iron Works, of Wayne, Pa., has announced the production of a new folding stage, which makes it easy to adapt the auditorium-gymnasium to the functioning of any educational program in the school.

The stage which is unrolled from its vertical folded position as easily as a curtain is drawn, is 12 ft. in size, and is supported by powerful counterbalance springs that make the folding operation easy as well as safe. The stage is made in sections, offering a variety of widths for all sorts of school purposes.

A typical stage of this character has been installed in the Nether Providence School at Wallingford, Pa., where it has been found necessary to use the gymnasium as an auditorium. The school authorities believe that the Wayne folding stage is of great value in enlarging the usefulness of the gymnasium to that of an additional auditorium, which is often needed in connection with school programs.

SCHOOL-BUILDING CONSTRUCTION

In eleven states west of the Rocky Mountains, six new school bu.ldings were put under construction, at a total cost of $379,064. Four projects were reported as approaching contracts, at an estimated cost of $164,611.

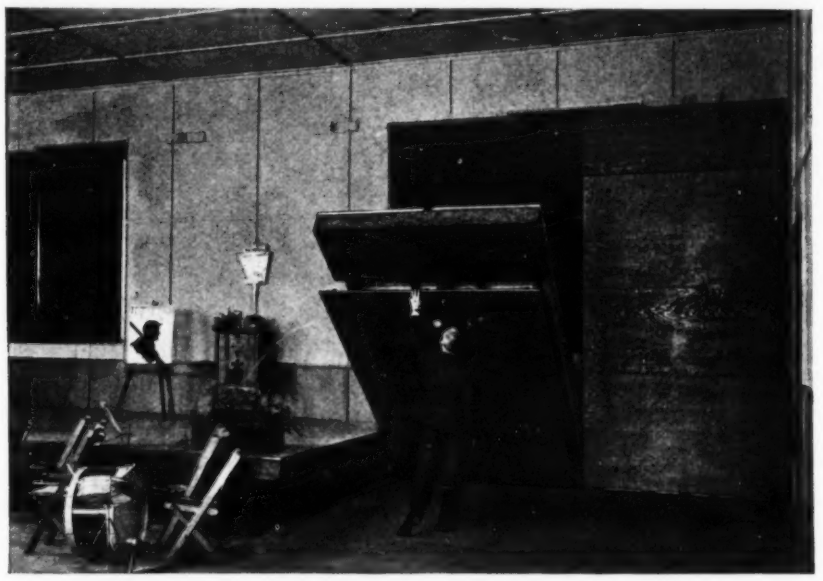
During the month of November Dodge reports that contracts for 411 educational buildings were let. Of these, 337 are schools and colleges, 49 are gymnasiums, and 26 are libraries and laboratories, etc.

The total construction amounts to 3,674,000 square feet, and the cost is $24,668,300.

SCHOOL-BOND SALES

Statistics compiled by the SCHOOL BOARD JOURNAL indicate that during the month of November school bonds in the amount of $18,563,189 were sold. Refunding bonds, short-term notes, etc., for current purposes in the amount of $1,060,522 were sold.

The average pr.ce of school bonds netted purchasers 3.23 per cent.



THE WAYNE FOLDING STAGE FOR SCHOOL GYMNASIUMS AND AUDITORIUMS OCCUPIES ONLY 30 INCHES OF FLOOR SPACE WHEN FOLDED BACK

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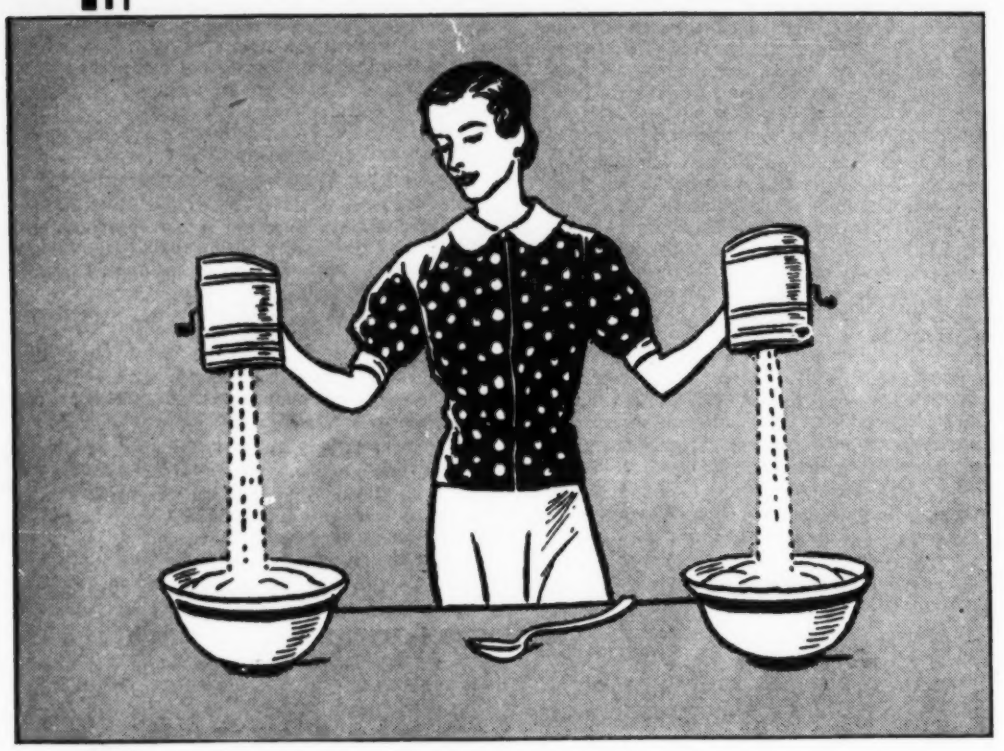


Most Flours look alike..

Any housewife will tell you that one brand of flour looks pretty much like any other. But she'll also tell you that the results she gets are vastly different.

THERE'S JUST AS MUCH DIFFERENCE IN CLEANERS

Dishwashing compounds may look alike but there's a great deal of difference in the results they give. The worthwhile results given by Wyandotte Cherokee Cleaner are

Cleaner dishes
Lower dishwashing costs
Protection to dishwashing machines

If you are not now enjoying the efficiency and economy of Wyandotte Cherokee Cleaner it will pay you well to ask your Wyandotte Service Representative to give you a demonstration, at your convenience and without placing you under any obligation.

Wyandotte
Cherokee Cleaner

THE J. B. FORD COMPANY :: Wyandotte, Michigan

Electric Control

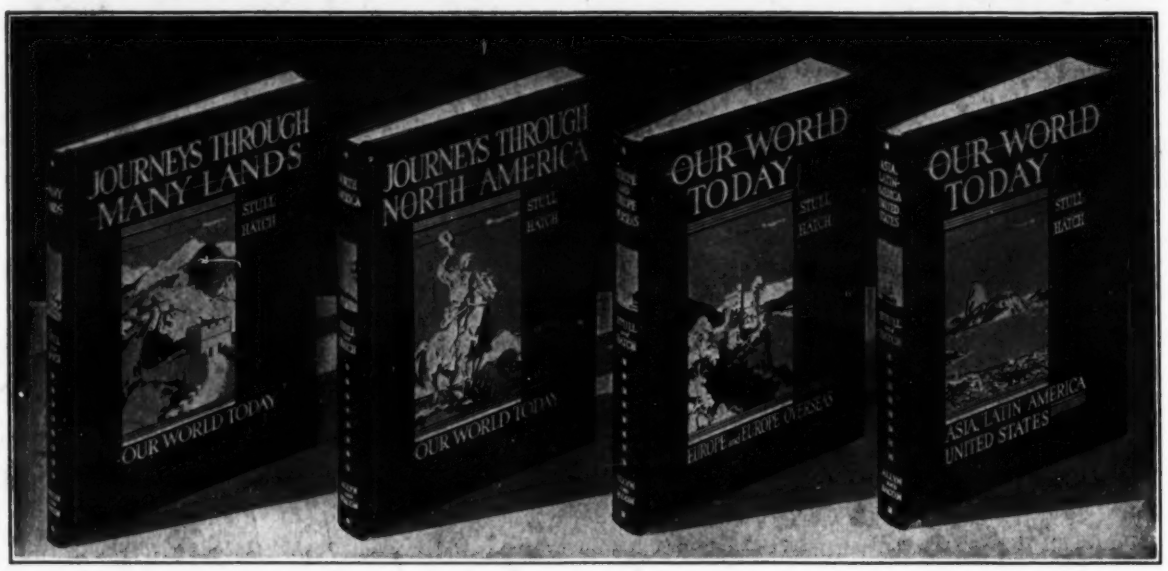
FOR MODERN PERFORMANCE

THE Minneapolis-Honeywell Modutrol System of electric control is as modern as electricity itself—and consequently provides modern performance for heating, ventilating and air conditioning control. Being entirely electric, or self contained, it is easily installed in both existing and new schools and is equally efficient for large and small installations. Electric control enables the Modutrol System to provide true modulation — precise positioning of dampers, valves and louvers. The various units comprising the Modutrol System are individually selected to meet the specific requirements of every school, making each system custom tailored. Electric control permits each individual unit to operate independently, yet in perfect harmony, which greatly reduces service and maintenance cost. The Minneapolis-Honeywell engineer in or near your city is available for consultation with you, your architect or your engineer, with no obligation. Minneapolis-Honeywell Regulator Co., 2830 4th Ave. S., Minneapolis, Minn.

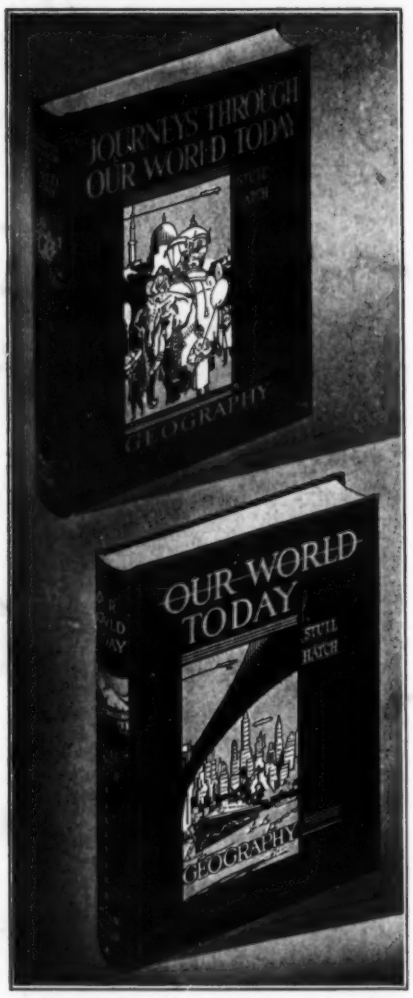
MINNEAPOLIS HONEYWELL

Control Systems

BROWN INSTRUMENTS FOR INDICATING, RECORDING AND CONTROLLING



THE NEW GEOGRAPHY



An hundred realms appear—
Lakes, forest, cities, plains, extending wide,
The pomp of kings, the shepherd's humbler pride.
—Goldsmith, The Traveler.

When the tiny Phoenician galleys left the safety of home shores and ventured out from the Mediterranean even into the stormy Atlantic, trade and treasure were not the only lures to the far horizon.

It was not the need for a new home alone which propelled the boats of the Vikings. Marco Polo's stories of jewels and gold in Cathay, and search for a northwest passage were not the only magnets that drew the caravels to a new continent.

More dominant than any of these material forces was the irresistible urge to discover and explore. This restless spirit of the human heart still spurs men on to miraculous achievements, sending them to regions of ice and snow, or on courageous journeys to the stratosphere, or to the boundless wastes of some untrod desert.

No longer are these ventures into the unknown the privilege of the few. The printed page permits the stay-at-homes to share them.

Today's world is a world of travel, and our children can be prepared to make their journeys intelligently and appreciatively.

Geography is the subject that fulfills this function, because the heart of geography is travel—travel so conducted and interpreted that provincialism fades and kinship with the world becomes paramount.

Allyn and Bacon

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